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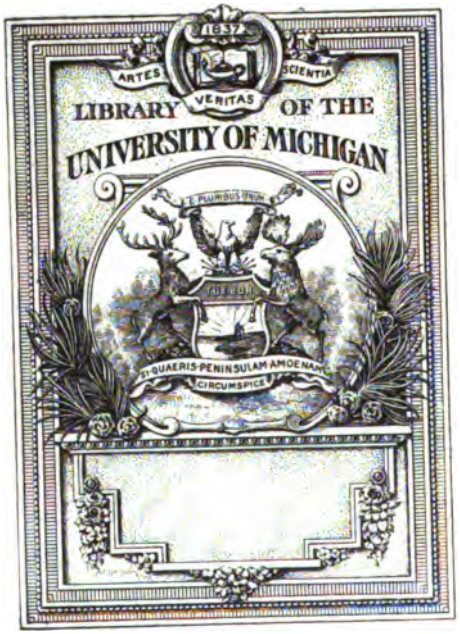
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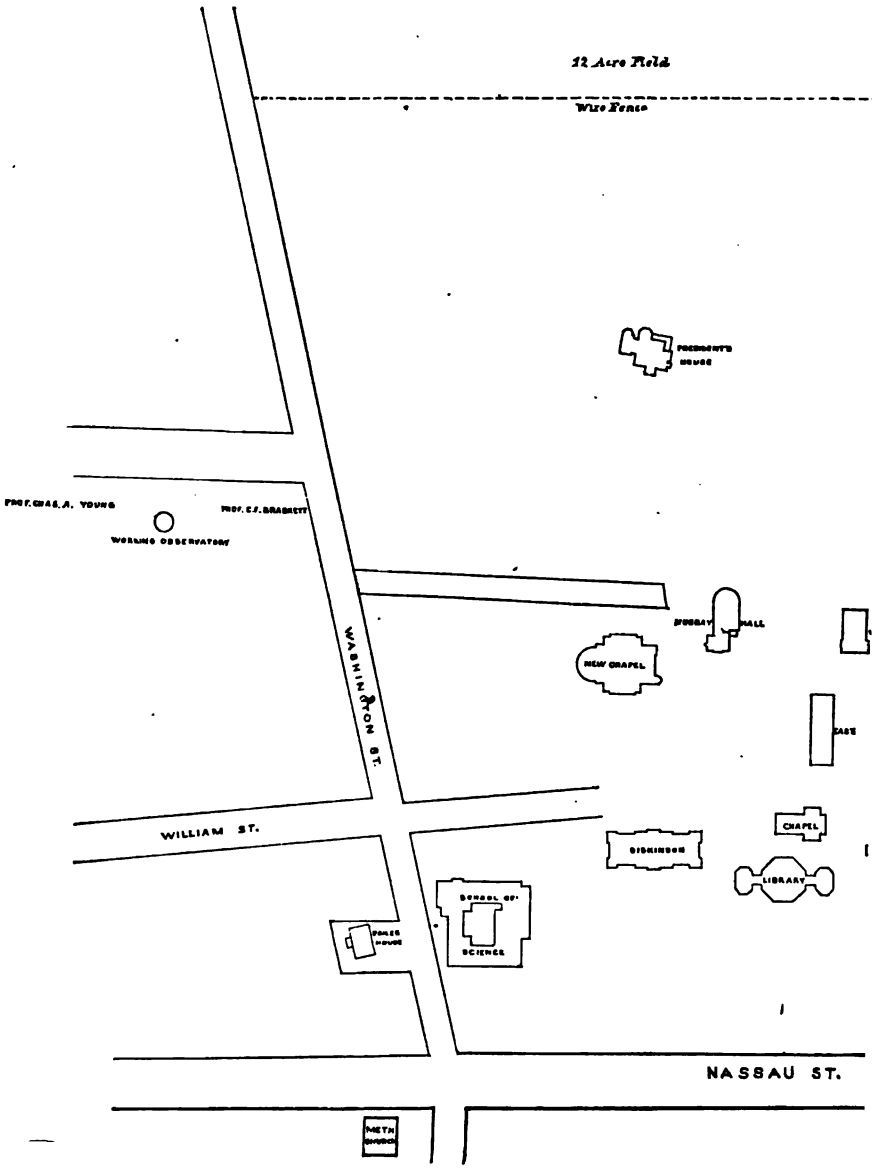
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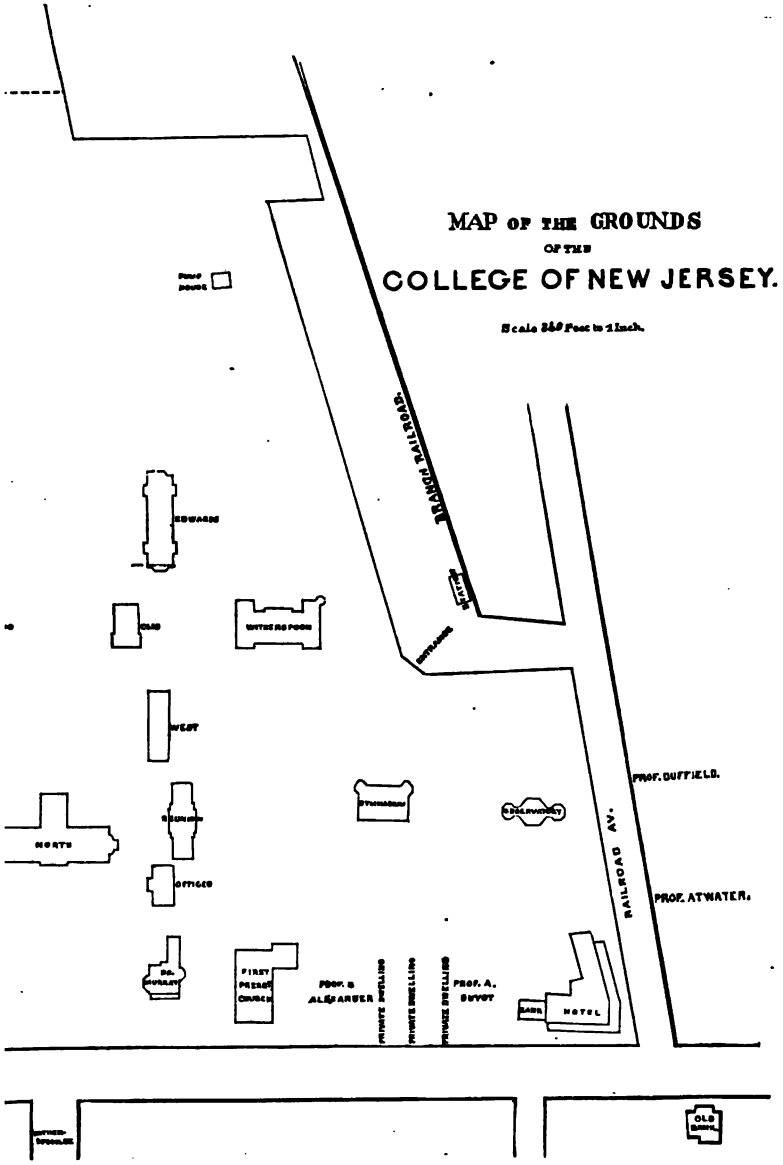
MAP OF THE GROUNDS
OF THE
COLLEGE OF NEW JERSEY.
Scale 240 Feet to 1 Inch.
TRENTON RAILROAD.
EDWARDS
OLD
WITHERSPOON
WEST
NORTH
REFECTORY
OFFICES
PRESIDENTS HOUSE
FIRST PRESBY CHURCH
PROF. J. ALEXANDER
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PRIVATE DWELLING
PRIVATE DWELLING
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OF THE

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PRINCETON

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PRINCETON
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CALENDAR.

1882.

Sept. 12–13.	Examinations for admission.
Sept. 13.	First term began, College assembled at 3 P. M.
Sept. 14.	Conditioned and unexamined students assembled in old Chapel—Elective Classes enrolled, 12 M.
Nov. 9.	Stated Meeting of the Board of Trustees.
Nov. 30–Dec. 4.	Thanksgiving Recess.
Dec. 11–20.	Examinations. End of first term.
Dec. 20–Jan. 3.	Christmas vacation.

1883.

Jan. 3.	Second term begins.
Feb. 8.	Stated Meeting of the Board of Trustees.
Feb. 22.	Washington's Birthday—Exercises in old Chapel.
April 11.	End of second term.
April 11–18.	Spring vacation.
April 18.	Third term begins.
May 19.	Last day for renewing room-agreements for '83–4.
May 23–31.	Senior final examinations.
June 1.	Annual allotment of rooms.
June 4–16.	Examinations of the three lower classes.
June 17.	Baccalaureate sermon.
June 18–20.	Commencement Meeting of the Board of Trustees.
June 18.	Class Day—Junior Orations 7.30 P. M.
June 19.	Reading of Theses by Scientific students—Annual Meetings of Literary Societies — Annual Meeting of Alumni Association — Lynde Prize Debate, 7.30 P. M.
June 20.	CXXXVI. Annual Commencement.
June 21–22.	Examinations for admission held simultaneously in Princeton and Western cities.
June 20–Sept. 12.	Long vacation.

Sept. 11–12.	Examinations for admission in Princeton only.
Sept. 12.	First term begins—College assembles at 3 P. M. in Marquand Chapel.
Sept. 13.	Conditioned and unexamined students assemble in the old Chapel, 10 A. M.
Nov. 8.	Stated Meeting of the Board of Trustees.
Nov. 29–Dec. 3.	Thanksgiving Recess.
Dec. 19.	End of first term.

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Thomas Ross Paden,	Washington, Pa.,	18 N
William E. Parke,	Parkesburg, Pa.,	2 N E H
John Ehrick Parmly,	New York City,	H Univ. Hotel
†Edward C. Peace,	Philadelphia, Pa.,	6 W M W H
Fred. A. C. Perrine,	Freehold, N. J.,	3 S E H
Robert Davison Petty,	Vienna, N. J.,	17 N
Furman Sheppard Phillips,	Philadelphia, Pa.,	1 W W H
Latimer H. Prescott,	Salt Lake City, Utah,	17 N E
Charles A. Richmond,	East Orange, N. J.,	2 S W
Perlee Lowe Rieman,	Baltimore, Md.,	2 E W H
†Lawrason Riggs, Jr.,	Baltimore, Md.,	7 W M W H
Edwin Milton Royle,	Salt Lake City, Utah,	10 S W
Edward Huntting Rudd,	Rahway, N. J.,	10 W M W H
Frank Bergen Rue,	Freehold, N. J.,	27 S E H
James C. Russell,	Danville, Pa.,	37 S E H
William Edward Russell,	Cumberland, Md.,	35 N E H
Fred Newman Rutan,	Newark, N. J.,	17 N E
William Carpenter Scott,	Philadelphia, Pa.,	16 E W H
Joseph Brown Seguin,	New Orleans, La.,	4 W M W H
†Robert French Shanklin,	Evansville, Ind.,	8 N E
William Kinkead Shelby,	Lexington, Ky.,	9 W W H
John Rieman Smyser,	York, Pa.,	17 N E H
Robert Wade Speir,	South Orange, N. J.,	6 N W
Hunter St. John,	New York City,	6 N R H
Randolph St. John,	New York City,	6 N R H
Thomas C. Summerill,	Penn's Grove, N. J.,	18 S W
James T. Sweetman, Jr.,	Washington, D. C.,	Mr. Hudnut's
Sydney Richmond Taber,	New York City,	7 S E
Wm. James Taylor,	New York City,	14 N W
Charles Vance Thompson,	Kansas City, Mo.,	Mr. Kopp's
Winfield Boyd Thompson,	Kansas City, Mo.,	Mr. Kopp's
Henry A. Towle,	Newark, N. J.,	1 S R H
Wm. Morrison Trainer,	Steubenville, O.,	16 N E

Hartley T. Updike,	Pennington, N. J.,	20 S W
Edward Vollrath,	Bucyrus, O.,	Mr. Hageman's
Mindo George Vulcheff,	Yambol, Thrace,	26 N
Francis Rawle Wadleigh,	Bryn Mawr, Pa.,	5 W M W H
Thomas Brown Wanamaker,	Philadelphia, Pa.,	12 E W H
Aaron Condit Ward,	Irvington, N. J.,	20 N E
Frederick Barnard White,	New York City,	17 & 20 S E H
Franklin Lee Whitlock,	Chester, S. C.,	1 S R H
Andrew Wilkins Wilson, Jr.,	Indiana, Pa.,	Mrs. Stonaker's
Charles George Wilson,	Pilatka, Florida,	17 E W H
Frank Churchill Woods,	Baltimore, Md.,	7 S W
Robert S. Yard,	Washington, N. J.,	16 S E H
Charles Ira Young,	Princeton, N. J.,	Prof. Young's

SENIORS, ... 103

JUNIOR CLASS.

William Alton, Jr.,	Chicago, Ill.,	9 E M W H
William Eugene Ayres,	Toms River, N. J.,	8 S M R H
James Marcus Baldwin,	Columbia, S. C.,	1 N R H
Edwin Starr Belknap,	Newburgh, N. Y.,	10 E M W H
Alvin Blackwell,	Pennington, N. J.,	20 S W
Josiah Low Blackwell,	New York City,	3 W M W H
John Denniston Blair,	Hollidaysburg, Pa.,	Mrs. Warren's
John Yeomans Boyd,	Harrisburg, Pa.,	4 E M W H
James Edward Burt,	East Stroudsburg, Pa.,	32 N E H
George Prentiss Butler,	Yonkers, N. Y.,	8 W M W H
George Haywood Carpenter,	Washington, O.,	20 E W H
William Chester,	Washington, D. C.,	14 S E
Henry Franklin Coan,	Hudson, N. Y.,	Mrs. Warren's
Francis Lowell Coolidge,	Boston, Mass.,	14 E W H
John C. Daves,	Baltimore, Md.,	12 S W
Charles Edgar Davis,	Hightstown, N. J.,	14 S M R H
Leonidas Dennis,	Johnsonburg, N. J.,	4 S W
Edward Blackwell Dolton,	Trenton, N. J.,	5 N E
Samuel G. Dornblaser,	Lamar, Pa.,	13 S M R H
Charles Bernard Dunn,	Newton, N. J.,	27 N

Seneca Egbert,	Franklin, Pa.,	6 S R H
William Erdman,	Jamestown, N.Y.,	Mrs. T. Leard's
†Alexander Butler Ernst,	Covington, Ky.,	9 N W
George Ross Eshleman,	Lancaster, Pa.,	Mrs. Smith's
George Edgar Etter,	Harisburg, Pa.,	4 S M R H
John M. T. Finney,	Bel-Air, Md.,	10 N R H
John Newton Forman,	Lahore, India,	48 Brown Hall
†George Barton French,	New York City,	46 Univ. Hotel
Henry Bell Gayley,	Colora, Md.,	11 N M R H
J. Franklin Gulick, Jr.,	Princeton, N. J.,	7 N E
Joseph Henry Gulick,	Princeton, N. J.,	7 N E
Charles Sumner Hamilton,	Columbus, O.,	21 Mansion H
†Richard J. Hamilton,	Hagerstown, Md.,	4 S R H
John Maynard Harlan,	Washington, D. C.,	8 W M W H
George McLean Harper,	Shippensburg, Pa.,	13 E W H
Edward Wyckoff Harris,	Hightstown, N. J.,	7 E M W H
Job Elmer Hedges,	Danville, N. Y.,	B Univ. Hotel
Grier Hersh,	York, Pa.,	6 W W H
Carl Heydrick,	Franklin, Pa.,	12 N M R H
William C. Hill,	Red Bank, N. J.,	5 N E
Angier Bailey Hobbs,	Washington, D. C.,	14 S E
Charles James Howell, Jr.,	Poughkeepsie, N. Y.,	9 N E H
Robert Hunter,	Princeton, N. J.,	Mr. Hunter's
Randall Hutchinson,	Trenton, N. J.,	9 S E H
Ferdinand Jelke, Jr.,	Cincinnati, O.,	19 E W H
John Gundry Jennings,	Brady's Bend, Pa.,	Mr. Van Syckel
Newell Lowrie Johnson,	Milton, Pa.,	1 N R H
Paul Thomas Kimball,	Eatontown, N. J.,	9 S M R H
William Marvin Langdon,	New York City,	13 S W
James Marshall Lawson,	Oxford, Pa.,	11 S M R H
Edward S. Leavitt,	Princeton, N. J.,	Mr. Leavitt's
Chester Fairman Lee,	Sandusky, O.,	9 S R H
Emil Leute,	Philadelphia, Pa.,	8 N E H
Alvin Fayette Lewis,	Bowling Green, Ky.,	40 S E H
David Millard Look,	Louisville, Ky.,	5 W M W H
Ayres D. Lundy,	Williamsport, Pa.,	9 S R H
Robert Gordon Mackay,	Philadelphia, Pa.,	1 N E H
Starling L. Marshall,	Henderson, Ky.,	10 S R H

Joseph Edgar Maxwell,	Millersburg, O.,	2 N W
Thomas J. McCormick,	Long Island City, N.Y.,	8 S M R H
Frederic D. McKenney,	Washington, D. C.,	20 W W H
R. Fulton McMahon,	Cambridge, O.,	Mrs. Zapf's
Albert Walter McMillan,	St. Paul, Minn.,	9 E M W H
Arthur McQuiston Miller,	Eaton, O.,	Mrs. Warren's
Eugene Miller,	Bowling Green, Ky.,	40 S E H
Ivan D. Mishoff,	Lovtcha, Bulgaria,	42 N E H
William David Moffat,	Princeton, N. J.,	Dr. Moffat's
John Campbell Murray,	Princeton, N. J.,	Mrs. Murray's
William Latta Nassau,	Trenton, N. J.,	9 N E
Thomas McBride Nichols,	Pittston, Pa.,	29 N E H
Arthur Wellesley Olcott,	St. Louis, Mo.,	16 S W
Smith Ordway,	Jasper, N. Y.,	19 N
Charles Frederick Parmly,	New York City,	H Univ. Hotel
Henry Neill Paul,	Philadelphia, Pa.,	11 S E
Samuel Johnson Poe,	Baltimore, Md.,	3 E W H
Atlee Pomerene,	Berlin, O.,	14 N E
Da Costa Pomerene,	Berlin, O.,	14 N E
Robert Kelly Prentice,	New York City,	11 N E
Alfred Gaudy Reeves,	Millville, N. J.,	Mrs. Furman's
Wm. Frederick Reynolds,	Bellefonte, Pa.,	10 E W H
†William Calhoun Rion,	Winnsboro', S. C.,	1 S M R H
William Luttrell Rogers,	Princeton, N. J.,	Mr. Rogers'
Alexander Spencer Rowland,	Princeton, N. J.,	Mr. Rowland's
Raymond Wells Sharp,	Camden, Del.,	Mr. Wolfe's
Ralph Wells Shaw,	Paterson, N. J.,	13 S E H
Augustine Coleman Smith,	New York City,	14 W W H
Ellison Adger Smyth, Jr.,	Charleston, S. C.,	9 N E
John Stevens,	Washingtonville, N.Y.,	10 E M W H
Henry Clay Stewart,	Washington, D. C.,	15 N W
Theodore A. Swan,	Oyster Bay, N. Y.,	34 N E H
†Albert Taylor,	New York City,	14 N W
Claude M. Thomas,	North Middletown, Ky.,	19 W W H
Ambrose Giddings Todd,	Madison, N. J.,	6 E M W H
†Reverdy Johnson Travers,	New York City,	Univ. Hotel
Alexander Horton Travis,	Brooklyn, N. Y.,	32 S E H
John Rodolph Urner,	Pottstown, Pa.,	Mr. Runyan's

Robert Woods Van Kirk,	South Strabane, Pa.,	19 N
Alden Welling,	Trenton, N. J.,	8 S E H
George Edward Woodhull,	Marinette, Wis.,	14 N M R H
William Patton Woods,	Lewiston, Pa.,	6 E M W H
Arthur Lyon Young,	Philadelphia, Pa.,	33 N E H

JUNIORS, ... 101

SOPHOMORE CLASS.

Richard Henry Appleby,	New York City,	2 N M R H
John Watson Barr, Jr.,	Louisville, Ky.,	2 E M W H
James Wilson Bayard,	Germantown, Pa.,	20 N W
Robert Hezekiah Beattie, Jr.,	New Hurley, N. Y.,	10 N E
Joseph Dorsett Bedle, Jr.,	Jersey City, N. J.,	10 W W H
Grant Robinson Bennett,	Portage, Wis.,	Mrs. Ferguson's
William Duffield Bell,	Fort Leavenworth, Ks.,	29 S E H
Thomas C. Berry,	Hagerstown, Md.,	13 W W H
Clinton Wallace Bird,	New York City,	13 N E
John Bennett Bissell, Jr.,	Charleston, S. C.,	7 W W H
Edward King Blades,	Watseka, Ill.,	11 N E H
John Woods Brown, Jr.,	Milton, Pa.,	19 S E
Frederick Wing Burleigh,	Fitchburg, Mass.,	Mr. Lavake's
Robert Eber Carter,	Huntington, L. I.,	31 N E H
Wm. Whitefield Cator,	Baltimore, Md.,	4 N R H
Warren Blanchard Chapin,	New York City,	21 S E H
Charles Steele Clark,	Indiana, Pa.,	17 W W H
Alex Emile Clerihew,	Cincinnati, O.,	5 S R H
James Harlan Cleveland,	Augusta, Ky.,	2 W W H
John Haughton Coney,	Cincinnati, O.,	5 S R H
Wm. Waddell Conner,	Washington, Iowa,	2 N M R H
John Crossan Cooper,	Pittsburg, Pa.,	11 E W H
Monroe Crawford,	Hoboken, N. J.,	24 N
Aaron Van Syckle Dawes,	Hightstown, N. J.,	25 S E H
Sherrerd Depue,	Newark, N. J.,	Mr. Geo. Goldie's
John Rogers Dickey,	Philadelphia, Pa.,	19 S E
Nathan Brooke Dolan,	Philadelphia, Pa.,	8 W W H
Wm. Winchester Donaldson,	Baltimore, Md.,	14 N E H

Malvern Nicholas Due,	Wetumpka, Ala.,	Mr. Zapf's
Duncan Edwards,	Brooklyn, N. Y.,	31 S E H
†Joseph Cuther Foster,	Cincinnati, O.,	8 E M W H
William Resor Foster,	Cincinnati, O.,	8 E M W H
Abram Bradley Gaither,	Baltimore, Md.,	3 N E H
Carey Breckenridge Gamble,	Baltimore, Md.,	Mrs. Anderson's
*Henry Wilson Gledhill,	Paterson, N. J.,	
Hiram Abiff Gooch,	Louisville, Ky.,	6 S E
John Lorimer Graham,	New York City,	16 W W H
Wm. Langley Granberry,	Columbia, Tenn.,	13 N E
Frank McCartney Griffith,	Jacksonville, Ill.,	15 E W H
Wm. Maclay Hall, Jr.,	Bedford, Pa.,	Mr. Warren's
Alexander Hardcastle,	Goldsboro', Md.,	Mrs. Warren's
J. Borden Harriman,	New York City,	10 S E
John Morgan Harris,	Taylorville, Pa.,	7 S E H
James Edward Hayes,	Princeton, N. J.,	Mrs. Hayes'
Walter Bryant Head,	Pittsburg, Pa.,	Mrs. Zapf's
James Roberts Hughes,	Bellefonte, Pa.,	24 N
James Leonard Humphrey,	New York City,	11 W W H
Wm. Fessenden Jackson,	Newark, N. J.,	11 N W
John Edgar Johnson, Jr.,	New York City,	13 S E
Henry Kirkland Jones,	Fortress Monroe, Va.,	7 S M R H
Alford Kelley,	Baltimore, Md.,	25 N E H
Eaton McLean Kempshall,	Elizabeth, N. J.,	10 N M R H
Sanford Norris Knapp,	Peekskill, N. Y.,	18 N W
Charles Rhodes Knox,	Bloomfield, N. J.,	10 S M R H
Henry Lamberton,	Winona, Minn.,	Mr. Lavake's
Reuben S. Lawrence,	Wichita, Kan.,	19 N E
S. Harper Leeper, Jr.,	Frankfort Springs, Pa.,	19 N E
John C. Lord,	Morristown, N. J.,	19 N W
William Henry Lynch,	Fair Hill, Md.,	22 N E H
David Hunter McAlpine, Jr.,	New York City,	12 W W H
Charles Flint McClumpha,	Amsterdam, N. Y.,	13 N W
John Bird McFerran, Jr.,	Louisville, Ky.,	5 E M W H
Clarence Walworth McIlvaine,	St. Albans, Vt.,	6 E W H
Wm. Brown McIlvaine,	Peoria, Ill.,	17 N W
John Kimberly Mumford,	Syracuse, N. Y.,	Miss Leigh's

* Absent from College.

James Percy Murray,	Princeton, N. J.,	Dr. Murray's
Howard G. Myers,	Albany, N. Y.,	13 N W
Robert Meade Parker,	Newark, N. J.,	8 S R H
Theodore Pershing,	Pottsville, Pa.,	16 S E
James Potter,	Baltimore, Md.,	3 E M W H
William Pickersgill Riggs,	Baltimore, Md.,	7 W M W H
Addison Fisk Roberts,	New York City,	F Univ. Hotel
Ford Winfield Rochelle,	Sparta, N. J.,	38 S E H
Paul Adrian Scharff,	Madison, N. J.,	2 S E H
Joseph Bernard Shea.	Pittsburg, Pa.,	17 S W
Alfred Bowne Sherwood,	Scotchtown, N. Y.,	Miss Lockard's
Benjamin Bosworth Smith.	Louisville, Ky.,	Mrs. C. B. Smith's
Everett Lansing Smith,	New York City,	3 W W H
Robert Little Smith,	Appleton, Wis.,	18 S M R H
Charles Reid Spence,	Baltimore, Md.,	11 S W
A. Livingston Stavely,	Lahaska, Pa.,	40 N E H
William DeWitt Sterry,	New York City,	18 N E H
Jonathan Sturges,	New York City,	8 E W H
George E. Swartz,	Danville, Pa.,	1 N W
Henry Dallas Thompson,	Catskill, N. Y.,	12 S M R H
Henry Herbert Thorp,	New York City,	15 S W
Howard Payson Trask,	Fulton, Ill.,	8 N M R H
Arthur Magie Tree,	Chicago, Ill.,	2 E M W H
Thomas Chalmers Umsted,	Smyrna, Del.,	11 N M R H
Charles Van Ausdal,	Dayton, O.,	12 N W
Lewis Rodman Wanamaker,	Philadelphia, Pa.,	12 E W H
Paul Weir,	Owensboro, Ky.,	9 N M R H
James McIver Wicker.	Sanford, N. C.,	1 N W
William Lane Wilbur,	Hightstown, N. J.,	16 N E H
Robert Parmelee Wilder.	Princeton, N. J.,	Mr. Wilder's
Edmund Wilson,	Shrewsbury, N. J.,	10 S M R H
Frederic Hart Wilson,	Philadelphia, Pa.,	13 N M R H
Edward Scott Wood,	Trenton, N. J.,	5 N R H
William Edwin Woodend,	Huntington, L. I.,	10 N E H
Frank Stiles Woodruff,	Elizabeth, N. J.,	10 N E
Charles Robert Wylie, Jr.,	Pottstown, Pa.,	28 S E H
George Douglass Young,	New York City,	1 W M W H

SOPHOMORES, ... 102

FRESHMAN CLASS.

James Collins Adams,	Oakland, Cal.,	Mrs. Harvey's
William Arrott,	Pittsburg, Pa.,	Mrs. Smith's
Pearce Bailey,	Morristown, N. J.,	Mr. Waibel's
Joseph Deyoe Baucus,	Bacon Hill, N. Y.,	62 Univ. Hotel
Dan Denison Bickham,	Dayton, O.,	Mrs. Smith's
Montgomery Blair, Jr.,	Washington, D. C.,	I Univ. Hotel
Robert Bruce Bowie,	Baltimore, Md.,	4 N E H
John Calhoun,	Connellsville, Pa.,	Mrs. Runyan's
Wm. Adley Calhoun,	Connellsville, Pa.,	Mrs. Runyan's
Arnold Guyot Cameron,	Princeton, N. J.,	Prof. Cameron's
James Cochran Carter,	Boonton, N. J.,	21 N E H
Samuel Thomson Carter, Jr.,	Huntington, L. I.,	30 N E H
Charles Howard Chetwood,	Elizabeth, N. J.,	24 S E H
Horace Newton Congar, Jr.,	Newark, N. J.,	Miss Smith's
John Henry Denny,	Winchester, Va.,	34 S E H
Anthony Woodward Durell,	Williamstown, N. J.,	18 S W
George A. Tryon Eddy,	Brockport, N. Y.,	Mrs. Smith's
Wm. Simpson Elder,	Warsaw, O.,	Mr. Runyan's
Harry Charles Elsing,	South Evanston, Ill.,	5 N E H
Charles Rosenbury Erdman,	Jamestown, N. Y.,	Mrs. Laird's
Fred Evans, Jr.,	Franklin, Pa.,	12 N M R
Frank Bateman Everitt,	Jamesburg, N. J.,	39 N E H
Wilson Farrand,	Newark, N. J.,	36 S E H
Matthew Corry Fleming,	Xenia, O.,	Mrs. Zapf's
Harry H. Forsyth,	Princeton, N. J.,	Mr. Forsyth's
George Irvine Foster,	Albany, Oregon,	Mrs. Lane's
Benjamin Howard Gaskill,	Mount Holly, N. J.,	24 N E H
Wm. Judd Goudy,	Chicago, Ill.,	C Univ. Hotel
James Sproat Green, Jr.,	Elizabeth, N. J.,	G Univ. Hotel
Robert Stockton Green, Jr.,	Elizabeth, N. J.,	8 S R H
Wm. Alexander Guthrie,	Indiana, Pa.,	Mrs. Stonaker's
Wm. D. Waples Hall,	Lewes, Del.,	1 N M R H
R. T. Haines Halsey,	New Orleans, La.,	68 Univ. Hotel
Marshal Halstead,	Cincinnati, O.,	Mrs. Stonaker's
Samuel McClintock Hamill,	Lemont, Pa.,	Mrs. Warren's
John W. Harding,	Tunkhannock, Pa.,	7 S E H
J. Arden Harriman,	New York City,	60 Univ. Hotel

Tracy Hyde Harris,	Hightstown, N. J.,	Mr. Dey's
†Charles Helliwell,	Princeton, N. J.,	42 S E H
Harry Hillard,	Morristown, N. J.,	28 N E H
Hugh Lenox Hodge,	Hartford, Conn.,	7 N R H
Richard Morse Hodge,	Hartford, Conn.,	7 N R H
John Parke Hood,	Mt. Airy, Pa.,	Mrs. Warren's
Wm. Herbert Hudnut,	Orange, N. J.,	Mr. Hudnut's
Robert Crawford Johnston,	Hollidaysburg, Pa.,	Miss Passage's
Harry W. Jessup,	Montrose, Pa.,	Mr. Zapf's
William Jessup,	Montrose, Pa.,	Mr. Zapf's
Wm. Dickey Kearns,	Pittsburg, Pa.,	Mrs. Smith's
Henry Lawson Kemper, Jr.,	Cincinnati, O.,	Mrs. Fine's
Henry Cumming Lamar,	Augusta, Ga.,	Mrs. Fine's
Adrian Hoffman Larkin,	Sing Sing, N. Y.,	Mr. Runyan's
Augustus Strong Mapes,	Goshen, N. Y.,	Mr. Wolfe's
John Cass Mathis,	Springfield, Ill.,	Mr. Zapf's
John Samuel McAdam,	Newport, R. I.,	Mrs. Harvey's
George Brinton McClellan, Jr.,	Orange, N. J.,	D & E Univ. Hotel
†James Wm. McKecknie,	Wilmington, O.,	Mr. Zapf's
Carroll McKenney,	Washington, D. C.,	20 W W H
Wm. Stevenson McLaren,	Philadelphia, Pa.,	32 Old Sem.
John McMullin,	San Francisco, Cal.,	Mr. Allen's
David Meriwether Milton,	Louisville, Ky.,	7 E W H
Joseph Carroll Montanye,	Johnsville, Pa.,	1 N M R H
John Alexander Montgomery,	Trenton, N. J.,	3 N R H
Matthew Morgan,	New York City,	Mrs. Fine's
Andrew Linn Nelden,	Newton, N. J.,	10 S E H
Stewart Paton,	New York City,	Mr. Goldie's
Horace Marshall Porter,	New York City,	Mr. Warren's
William Rankin,	Newark, N. J.,	Mr. Zapf's
Joseph Pope Ranney,	Elizabeth, N. J.,	12 N E H
†Clinton Leicester Rayner,	New York City,	Mr. Wolfe's
Taylor Reed,	Reedsville, Pa.,	Mr. Burke's
Arthur Wm. Remington,	Great Barrington, Mass.,	Mr. Zapf's
Frank Day Reynolds,	East Orange, N. J.,	Mrs. Anderson's
George Reynolds,	Orange, N. J.,	Mr. Burroughs'
Edward Orth Robinson,	Harrisburg, Pa.,	15 S E
George Black Roddy,	New Bloomfield, Pa.,	Mr. Burke's

Richard Reid Rogers,	Mt. Sterling, Ky.,	20 E W H
Morse Rowell, Jr.,	Miller's Place, N. Y.,	41 N E H
George Lester Rundle,	Walpack Centre, N. J.,	37 N E H
Walter King Sharpe,	Chambersburg, Pa.,	76 Univ. Hotel
James Prestly Shaw,	Pittsburg, Pa.,	Mr. Dey's
Ralph Crowley Sheldon,	Jamestown, N. Y.,	Mr. Zapf's
Renwick Thompson Sloane,	Allegheny City, Pa.,	Prof. Sloane's
Charles Grimes Stoddard,	Dayton, O.,	Mrs. Smith's
Wm. Edward Strater,	Louisville, Ky.,	Mrs. Rogers'
Oliver Smith Strong,	Montclair, N. J.,	Miss Smith's
Wm. Ferree Timlow,	Amity, N. Y.,	5 S E H
Edwin Kerr Thomas, Jr.,	North Middletown, Ky.,	19 W W H
Llewellyn Thomas,	New York City,	Mr. Goldie's
Robert Duncan Totten,	Pittsburg, Pa.,	Mr. Lavake's
Charles Sloan Van Syckel,	Trenton, N. J.,	Mr. Goldie's
James A. Van Wagenen,	New York City,	M Univ. Hotel
Albert Chandler Wall,	Hoboken, N. J.,	35 S E H
†J. Griffiths Grant Westbrook,	Kingston, N. Y.,	Miss Hageman's
James Cameron Wiley,	Lancaster, Pa.,	Mr. Burrough's
Wm. Phelps Wood,	Trenton, N, J.,	5 N R H

FRESHMEN, ... 95

SPECIAL STUDENTS.

John Morse Austin,[2]	Philadelphia, Pa.,	Mr. Lavake's
Edward L. Bradley,[2]	Philadelphia, Pa.,	5 N W
Joseph H. Casterline,[1]	Newark, N. J.,	Mr. Warren's
Charles Alexander Evans,[2]	Fisher, Minn.,	R H
Wm. Reading Gulick,[4]	Princeton, N. J.,	Mr. Gulick's
Ellery Elmer Kribbs,[1]	Edenburg, Pa.,	Nassau Hotel
James L. McCormick,[2]	Bel-Air, Md.,	10 N R H
J. Howard Neely,[1]	Honey Grove, Pa.,	31 Mansion H
Clarence Price,[2]	Cincinnati, O.,	8 E M W H
Wm. Cooper Proctor,[4]	Glendale, O.,	5 S W
James Weir Robinson,[3]	Dauphin, Pa.,	4 E M W H
Theodore B. Rogers,[2]	Wilmington, Del.,	6 W M W H

Charles Henry Smith,[2]	Philadelphia, Pa.,	18 S E H
Charles Reeves Stevenson,[3]	Haddonfield, N. J.,	1 W W H
Joseph L. Woolston,[2]	Philadelphia, Pa.,	10 N W
John Maclean Zapf,[4]	Princeton, N. J.,	Mrs. Zapf's

1. First Year of Course. 2. Second Year. 3. Third Year. 4. Fourth Year.

SPECIALS. 16

SUMMARY.

SENIORS.	103
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THE

JOHN C. GREEN SCHOOL OF SCIENCE.

FACULTY AND INSTRUCTORS.

JAMES McCOSH, PRESIDENT, *Psychology, Biblical Instruction.*
LYMAN H. ATWATER, *Logic, Political Economy.*
ARNOLD GUYOT, *Physical Geography.*
J. STILLWELL SCHANCK, *General Chemistry.*
JOSEPH KARGÉ, *Modern Languages and Literature.*
CYRUS F. BRACKETT, *Physics.*
HENRY B. CORNWALL, *Analytical Chemistry and Mineralogy.*
GEORGE MACLOSKIE, *Botany, Zoölogy.*
JAMES O. MURRAY, *English Literature and Language.*
CHARLES McMILLAN, *Civil Engineering.*
CHARLES A. YOUNG, *Astronomy.*
CHARLES G. ROCKWOOD, JR., *Mathematics.*
THEODORE W. HUNT, *Rhetoric, English Language.*
GEORGE L. RAYMOND, *Oratory.*
HERMANN C. O. HUSS, *French, German.*
WILLIAM LIBBEY, JR., *Hypsometry, Meteorology, Histology.*
WILLIAM B. SCOTT, *Geology.*
HENRY F. OSBORN, *Comparative Anatomy.*
JOHN B. McMASTER, *Civil Engineering.*
FREDERICK N. WILLSON, *Descriptive Geometry, Stereotomy, Drawing.*
C. BARTON MONROE HARRIS, *French, German.*
WILLIAM E. D. SCOTT, *Ornithology.*
CHARLES W. MARSH, *Analytical Chemistry.*
MALCOLM McNEILL, *Practical Astronomy.*

LOUIS D. RICKETTS, B.S.,
Ward Fellow in Economic Geology.

GRADUATE STUDENT.

Pedro Garza, Ph.D. (Göttingen), Mexico.
Special Course in Astronomy.

UNDERGRADUATES.

SENIOR CLASS.

I. Candidates for B.S. II. For C.E.

I.	Bennington R. Bedle,	Jersey City, N. J.,	23 S E H
I.	Francis S. Conover, Jr.,	Princeton, N. J.,	Mr. Conover's
I.	Charles Dunning,	Middletown, N. Y.,	1 S W
II.	William Pierson Field,	Newark, N. J.,	6 S W
II.	Theophilus A. Gill,	Esopus, N. Y.,	2 S R H
I.	Orlando Green,	Jackson, Miss.,	20 S E
II.	*William H. Gulick,	Princeton, N. J.,	Mr. Gulick's
I.	Charles Hewitt,	Trenton, N. J.,	8 N R H
I.	W. Goodrich Jones,	Brooklyn, N. Y.,	8 N R H
II.	Robert McKnight, Jr.,	Pittsburg, Pa.,	5 S W
II.	Frank Calvin Roberts,	Utica, N. Y.,	Rev. Mr. Roberts'
II.	Sinclair K. Royle,	Salt Lake City, Utah,	10 S W
I.	Samuel Irving Smith,	Dayton, O.,	16 N W

SENIORS. 13

JUNIOR CLASS.

I.	Henry McKeen Black,	Jobstown, N. J.,	15 S E H
I.	Wm. Edwin Collis,	Chester, N. J.,	Mr. Shann's
I.	†Andrew McNair Coyle,	Washington, D.C.,	Mr. A. Dohm's
II.	Samuel M. Cauldwell,	New York City,	7 E M W H
I.	Alexander Gray Fell,	Wilkes Barre, Pa.,	Mr. Runyan's
II.	Frank S. Hicks,	San Francisco, Cal.,	1 E W H
II.	Moorhead C. Kennedy,	Chambersburg, Pa.,	9 W M W H
I.	Frank H. Miller,	Cincinnati, O.,	18 W W H
II.	Alexander Moffat,	Princeton, N. J.,	Dr. Moffat's
I.	Harry C. Munger,	Plainfield, N. J.,	19 N E H
I.	John Warne Phillips,	Lawrenceville, N. J.,	12 S E H
II.	William Tod,	Glasgow, Scot.,	5 E W H

JUNIORS. 12

*Absent from College.
†Not fully examined.

SOPHOMORE CLASS.

I.	Alfred Thornton Baker,	Camden, N. J.,	Mr. Conover's
I.	Edmund Wallen Bill,	New York City,	16 S E
II.	James Buckelew,	Jamesburg, N. J.,	3 S R H
II.	Clarence L. Burger,	Brooklyn, N. Y.,	22 S E H
II.	John Stevens Conover,	Princeton, N. J.,	Mr. Conover's
II.	William Darling,	Wilkes Barre, Pa.,	9 W M W H
I.	Joseph Hill Dawson,	Baltimore, Md.,	4 N M R H
II.	Jannon Fisher,	Baltimore, Md.,	9 S W
II.	Luther Weeks Frost,	Yonkers, N. Y.,	13 N E H
I.	Persifor Frazer Gibson,	Philadelphia, Pa.,	2 E M W H
II.	Wm. Joseph Greene,	Cedar Rapids, Ia.,	7 N M R H
II.	Charles T. Day Halsey,	Newark, N. J.,	12 N E
I.	William Lawton, Jr.,	Kingston, N. Y.,	7 S R H
II.	John Blanchard Miles,	Peoria, Ill.,	5 S M R H
II.	†Howard Scribner,	Yonkers, N. Y.,	23 N E H
I.	Frank Heath Speer,	Pittsburg, Pa.,	6 S M R H
II.	Henry Pennington Toler,	Madison, N. J.,	12 N E
I.	John Green Van Etten,	Kingston, N. Y.,	7 S R H

SOPHOMORES, ... 18

FRESHMAN CLASS.

II.	Clarence Jones Allen,	Philadelphia, Pa.,	18 S E
I.	William Ballantyne,	Washington, D. C.,	Mr. Wolfe's
II.	Daniel Bower Banks,	Baltimore, Md.,	14 S E H
I.	Samuel Mills Bevin,	Easthampton, Conn.,	Mr. Dey's
II.	William R. Blakemore,	Louisville, Ky..	Mrs. Rogers'
I.	Wm. Hutton Blauvelt,	Tappantown, N.Y..	Mr. VanSyckle
I.	Joseph Cashman,	Watertown, Mass.,	Mr. Runyan's
II.	Herbert Hugh Claxton,	Yonkers, N. Y.,	Mrs. Borden's
I.	George Henry Davis,	Peoria, Ill.,	Mr. Hageman's
I.	Thomas Jefferson Dolan,	Philadelphia, Pa.,	Univ. Hotel
I.	Bertric Egbert,	Franklin, Pa..	6 S R H
I.	Harlan Victor Gause,	Wilmington, Del.,	76 Univ. Hotel
II.	Charles E. Griffith.	Lawrence, Kan.,	4 S W
II.	David Elwood Harlan,	Churchville, Md.,	Miss Passage's
II.	Walter Butler Harris,	Princeton, N. J.,	Mr. Harris'
I.	Walter Butler Howe,	Princeton, N. J.,	Mr. Howe's

I.	James B. Laughlin,	Pittsburg, Pa.,	Mr. Lavake's
I.	John J. Lawrence, Jr.,	Pittsburg, Pa.,	Mrs. Smith's
II.	Jas. Wallace McAlpine, Jr.,	Savannah, Ga.,	Dr. Macdonald's
I.	Edward H. Pershing,	Pottsville, Pa.,	20 N E H
I.	George Edward Shea,	Pittsburg, Pa.,	17 S W
I.	Daniel C. Smith,	Brooklyn, N. Y.,	Mr. Wolfe's
II.	Henry Edgerton Vance,	Wheeling, W. Va.,	Mrs. Rogers'
I.	W. Summerill Vanneman,	Salem, N. J.,	16 N
I.	Charles Whiting,	Ballston, N. Y.,	Mr. Wolfe's
II.	Samuel Renwick Wills,	Pittsburg, Pa.,	Mr. Dohm's
I.	James Wilson Woodrow,	Chillicothe, O.,	33 S E H
II.	Fred A. Young,	Princeton, N. J.,	Prof. Young's

FRESHMEN, ... 28

SPECIAL STUDENTS.

Harry Lewis Baldwin, Jr.,[2]	Denver, Col.,	26 S E H
John Henry Blye,[2]	Chestnut Hill, Pa.,	19 S W
Lowrie Childs,[1]	Omaha, Neb.,	Mr. Waibel's
James Lefferts Cornell,[2]	Brooklyn, N. Y.,	Mr. Thomas'
Charles Allen Healey,[2]	Atlanta, Ga.,	15 N M R H
James Hays Horner,[1]	Pittsburg, Pa.,	Mrs. Zapf's
Robert Lincoln Lee,[1]	New York City,	Univ. Hotel
Wm. Scott Kittle,[2]	San Francisco, Cal.,	5 N M R H
Burr William McIntosh,[1]	Pittsburg, Pa.,	Mr. Van Syckle
Frederic Gardiner Mead,[1]	Sing Sing, N. Y.,	Mr. Runyan's
George L. Nicholas,[1]	Summit, N. J.,	Mr. Thomas'

1. First year of course. 2. Second year. 3. Third year. 4. Fourth year.

SPECIALS, ... 11

SUMMARY.

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TOTAL,	82

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ACADEMIC STUDENTS,	417
SCIENTIFIC STUDENTS,	82
	566
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CLASSIFICATION BY RESIDENCE OF UNDERGRADUATES.

NEW JERSEY,	123	WISCONSIN,	3
PENNSYLVANIA,	111	LOUISIANA,	2
NEW YORK,	92	OREGON,	2
MARYLAND,	31	ALABAMA,	1
OHIO,	29	COLORADO,	1
KENTUCKY,	18	FLORIDA,	1
ILLINOIS,	12	INDIANA,	1
DISTRICT OF COLUMBIA,	11	MISSISSIPPI,	1
SOUTH CAROLINA,	6	MICHIGAN,	1
CALIFORNIA,	5	NEBRASKA,	1
DELAWARE,	5	NORTH CAROLINA,	1
CONNECTICUT,	4	TENNESSEE,	1
GEORGIA,	4	RHODE ISLAND,	1
IOWA,	4	VERMONT,	1
MASSACHUSETTS,	4	WEST VIRGINIA,	1
MINNESOTA,	4	BULGARIA,	1
MISSOURI,	4	INDIA,	1
KANSAS,	3	SCOTLAND,	1
UTAH,	3	THRACE,	1
VIRGINIA,	3		

ABBREVIATIONS.

N, Nassau Hall.
N E, North Entry of East College.
S E, South Entry of East College.
N W, North Entry of West College.
S W, South Entry of West College.
N R H, North Entry of Reunion Hall.
S R H, South Entry of Reunion Hall.
N M R H, North Middle Entry of Reunion hall.
S M R H, South Middle Entry of Reunion Hall.
E W H, East Entry of Witherspoon Hall.
W W H, West Entry of Witherspoon Hall.
E M W H, East Middle Entry of Witherspoon Hall.
W M W H, West Middle Entry of Witherspoon Hall.
N E H, North Entry of Edwards Hall.
S E H, South Entry of Edwards Hall.

HONORS AND DEGREES CONFERRED.

DEGREES.

Honorary Degrees conferred June, 1882.

LL.D.—Merrill Edwards Gates, Ph.D., President of Rutgers College.
Rev. David Kerr, D.D., Pennsylvania.
Prof. Henry M. Baird, Ph.D., D.D., Univ. of New York.
D.D. Rev. Frank Chandler, New Jersey, Class of 1854.
Rev. Roderick Terry, New York.
Sc.D. Ezra M. Hunt, M.D., New Jersey, Class of 1849.
PH.D. Samuel R. Winans, Adj. Prof. of Greek, C. N. J., Class of 1874.

Degrees Conferred for Graduate Study.

A.M. Charles L. Cooder, of Ohio.
William A. Hammond, of Ohio.
W. B. Jennings, of South Carolina.
W. I. Sinnott, of Mississippi.

Degrees in Course.

Master of Arts	80
Bachelor of Arts	
Bachelor of Science	2
Civil Engineer	3

HONORS 1881-2.

COMMENCEMENT HONORS.

MASTER'S ORATION.

Adrian Riker, New Jersey.

ORATIONS AT GRADUATION.

The Latin Salutatory.
George De Forest Lord Day, New York.

The Valedictory.
John Grier Hibben, Illinois.

The English Salutatory.
George Yardley Taylor, New Jersey.

Honorary Orations and Theses.
General or Special Excellence as indicated.

Thomas Peebles, Pennsylvania. *Mental Science.*
Alfred F. Burt, Pennsylvania. *Philosophy.*
Edward B. Critchlow, Utah. *Philosophy.*
Henry Crew, Ohio. *Chemistry.*
William B. Sherwood, New York. *General Excellence.*
Charles Alfred Lindsley, New Jersey. *General Excellence.*
George Peck Pierson, New Jersey. *The Classics.*
George F. Greene, New York. *Belles Lettres.*
Alfred Elmer Mills, New Jersey. *General Excellence.*
Edward Smallwood Hughes, North Carolina.
Paul Martin, New Jersey.
Clark H. Marshall, Pennsylvania.
Charles Van Loon Gabriel, Pennsylvania.
Charles Ramey Milford, Indiana.
Robert H. West, Pennsylvania. *Mathematics and Astronomy.*
William Carey Howell, Iowa.
Robert Crawford Hallock, Ohio.
Pennington Ranney, New Jersey. *Chemistry.*
Silas Everett Hurin, Ohio.
Theodore Potter, Ohio.
James Adam McWilliams, New York.
Charles Wolcott Parker, New Jersey.
Henry Hunter Welles, Jr., Pennsylvania.
Louis R. Scudder, Connecticut.
William Waterbury Scudder, Jr., Connecticut.
William Gilbert Sutphen, New Jersey.

FELLOWS.

IN EXPERIMENTAL SCIENCE.

Henry Crew, Ohio.

IN CLASSICAL LITERATURE.

George P. Pierson, New Jersey.

IN MATHEMATICS.

John Grier Hibben, Illinois.

IN MENTAL SCIENCE.

Thomas Peebles, Pennsylvania.

IN MODERN LANGUAGES.

C. B. M. Harris, Maryland.

IN HISTORY.

George F. Greene, New York.

IN ECONOMIC GEOLOGY.

Louis D. Ricketts, B. S., New Jersey.

SENIOR PRIZEMEN.

IN ENGLISH LITERATURE.

Robert C. Hallock, Ohio.

IN SCIENCE AND RELIGION.

John A. McWilliams, New York.

THE GEORGE POTTS BIBLE PRIZE.

John Jay Ralston, Pennsylvania.
Louis R. Scudder, Connecticut.

LYNDE PRIZE DEBATE.

George Y. Taylor, N. J., *First Prize.*
Thomas Peebles, Pa., *Second Prize.*
Henry Crew, Ohio, *Third Prize.*

DEBATERS.

Whig Society.	*Cliosophic Society.*
G. D. L. Day, N. Y.,	Henry Crew, Ohio.
Thomas Peebles, Pa.,	L. R. Scudder, Conn.,
J. C. Cromer, Ind.,	G. Y. Taylor, N. J.

BAIRD PRIZEMEN.

The Baird Prize.—	James A. McWilliams, New York.
	Thomas Peebles, Pennsylvania.
In Poetry.	Robert C. Hallock, Ohio.
In Disputation.	Henry Crew, Ohio.
	George F. Greene, New York.
In Oratory.	George D. L. Day, New York.

JUNIOR PRIZEMEN.

Junior First Honor Scholar.

Henry M. Landis, Pennsylvania.

Dickinson Prizeman.

Albert P. Carman, New Jersey.

Maclean Prizeman.

Wm. K. Shelby, Kentucky.

Junior Orator Medalists.

Wm. K. Shelby, Kentucky, *First Medal.*
John A. Hodge, Jr., Connecticut, *Second Medal.*
Edwin M. Royle, Utah, *Third Medal.*
C. Wesley Lynde, New Jersey, *Fourth Medal.*

Competing Junior Orators.

Cliosophic Society.	*American Whig Society.*
Claude R. Brodhead, N. J.,	John A. Hodge, Jr., Conn.,
Otto Crouse, N. J.,	John L. Keller, N. J.,
C. Wesley Lynde, N. J.,	Wm. C. Osborn, N. Y.,
Edwin M. Royle, Utah,	Wm. K. Shelby, Ky.

SOPHOMORE PRIZEMAN.

Class of 1861 Prize.

Alfred G. Reeves, New Jersey.

FRESHMAN PRIZEMAN.

Freshman First Honor Prize.

Wm. Brown McIlvaine, Illinois.

JUNIOR HONORMEN.

Name.	*Rank*	*Name*	*Rank*
H. M. Landis, Pa., . . .	i.	J. G. Murdoch, N. J., .	xii.
B. W. Mitchell, Pa., . .	ii.	G. W. Gilmore, N. Y., .	xiii.
A. P. Carman, N. J., . .	iii.	J. A. Hiestand, Pa., .	xiii.
A. W. Wilson, Jr., Pa., .	iv.	E. M. Landis, Pa., . . .	xv.
Otto Crouse, N. J., . . .	v.	S. M. Davis, Pa., . . .	xvi.
R. D. Petty, N. J., . . .	vi.	F. A. C. Perrine, N. J.,	xvii.
F. E. Hoskins, Pa., . .	vii.	H. T. Updike, N. J., . .	xvii.
George Edwards, Ia., . .	viii.	J. E. Parmly, N. Y., .	xix.
A. C. Ward, N. J., . . .	ix.	L. H. Prescott, Utah, .	xx.
J. C. Life, Pa., ...	x.	L. A. Lewis, Oregon, .	xxi.
T. C. Summerill, N. J., .	x.	J. C. Russell, Pa., . . .	xxi.

JUNIOR HONORMEN, SCHOOL OF SCIENCE.

CANDIDATE FOR C.E.

F. C. Roberts, N. Y.

CANDIDATES FOR B.S.

Charles Hewitt, N. J. } I.
W. G. Jones, N. Y. }

SOPHOMORE HONORMEN.

Name.	*Rank.*	*School.*
A. G. Reeves, . .	i.	Millville High School, Millville, N. J.
J. M. Baldwin, .	ii.	Collegiate Inst., Salem, N. J.
R. K. Prentice, .	iii.	Wm. H. Leggett's School, N. Y. City.
A. H. Travis, . .	iv.	Trinity Church School, N. Y. City.
A. B. Hobbs, . .	v.	Columbian College, Washington, D.C.
W. M. Langdon, .	vi.	Greylock Inst., South Williamstown,
H. N. Paul, . . .	vii.	Rugby Acad., Pa. [Mass. B. F. Mills.
T. M. Nichols, . .	viii.	New Brunswick High Sch., and Rev.
C. T. MacMullin,	ix.	Rev. S. H. MacMullin. [Thos. Nichols.
T. J. McCormick,	x.	D. L. Millard, Norwalk, Conn.
William Chester,	xi.	Mr. Crossman, Washington. D. C.
J. C. Murray, . .	xii.	Brooklyn College and Polytechnic Inst.
A. G. Todd, . . .	xiii.	Madison Class Inst., J. W. Lowrie.
G. P. Butler, . .	xiv.	Rev. M. R. Hooper's Acad., Yonkers,
Smith Ordway, .	xv.	Alfred Univ., Alfred, N. Y. [N. Y.
Ferdinand Jelke, Jr	xvi.	Hughes High School, Cincinnati.
J. N. Forman, . .	xvii.	Wabash College, Crawfordsville, Ind.
N. L. Johnson, .	xviii.	Milton Acad., Milton, Pa.
J. Y. Boyd, . . .	xix.	Harrisburg Acad., Prof. J. F. Seiler.

SOPHOMORE HONORMEN, SCHOOL OF SCIENCE.

CANDIDATE FOR B.S.

H. C. Munger, N. J., Dr. J. F. Pingry's Sch., Elizabeth, N. J.

CANDIDATE FOR C.E.

W. S. Tod, Scotland, . . . Glasgow Acad., Glasgow, Scotland.

FRESHMAN HONORMEN.

Name.	*Rank*	*School.*
W. B. McIlvaine,	i.	Peoria High School, Peoria, Ill.
J. W. Bayard, . .	ii.	Germantown (Pa.) Acad.
C. W. McIlvaine,	iii.	Franklin Co. (Vt.) Gram. Sch.
R. P. Wilder, . .	iv.	H. N. Van Dyke and Williston Sem.,
J. H. Cleveland, .	v.	Augusta (Ky.) Acad. [Easthampton.
C. F. McClumpha,	vi.	Albany High Sch., J. E. Bradley.
J. E. Johnson, Jr.,	vii.	Dr. H. B. Chapin's Coll. Sch., N. Y.
Jonathan Sturges,	viii.	A. H. Cutler's Collegiate Sch., N. Y.
J. E. Hayes, . . .	ix.	Prof. S. R. Winans, & Princ. P. Sch.
Duncan Edwards,	x.	Brooklyn College and Polytechnic Inst.
S. N. Knapp, . .	xi.	Peekskill Mil. Acad., C. J. Wright.
Sherrerd Depue, .	xii.	Newark (N. J.) Acad., S. A. Farrand.
H. D. Thompson,	xiii.	Dr. Holbrook's Sch., Sing Sing, N. Y.
C. R. Wylie, Jr.,	xiv.	"The Hill," Pottstown, Pa.
W. H. Lynch, . .	xv.	Rugby Acad., Wilmington, Del.
J. H. Coney, . .	xvi.	Woodward High Sch., Cincinnati, O.
R. E. Carter, . .	xvii.	Huntington High Sch., E. S. Hall.

FRESHMAN HONORMEN, SCHOOL OF SCIENCE.

J. B. Miles, Ill. . .	i.	Peoria High School, Ill.
Janon Fisher, Md.,	ii.	Epis. High School of Virginia.

ADMISSION.

ENTRANCE EXAMINATIONS.

Examinations for admission will be both oral and written. The first examination will commence in Princeton on Thursday, June 21st, at 11 A. M., and will continue through the forenoon of Friday. The second will commence on Tuesday, September 11th, at 11 A. M., and continue through the forenoon of Wednesday. *Attendance is required at the beginning of the examination.*

Simultaneously with the entrance examinations in Princeton, examinations are also held in the following cities, viz.: Cincinnati, Louisville, Chicago, St. Louis, and San Francisco; and elsewhere when necessary. The precise places in which the examinations are to be held can be learned by application to the President.

Examinations at other times and places than those specified are inconvenient, and often impracticable, and applicants for admission at other than the regular days are required to pay $10 into the treasury.

SUBJECTS.

Candidates for admission to the Freshman Class are examined in the following books and subjects:

English.

English Grammar (Whitney's); Orthography; Punctuation; Short and Simple English Composition; Geography, Ancient and Modern; United States History (Scott's).

The attention of Preparatory Schools is called to the need of a more thorough study of elementary English.

Latin.

Latin Grammar, including Prosody; Cæsar (five books of the Commentaries); Sallust (Catiline or Jugurtha); Virgil (six

books of Æneid); Cicero's Select Orations (six); Arnold's Latin Prose Composition (twelve chapters).

Greek.

Greek Grammar, including Prosody; Xenophon (three books of the Anabasis), or Greek Reader (Goodwin's) 111 pages.; Homer (the first two books of the Iliad, except the Catalogue of the Ships); Greek Composition (Jones' Exercises in Greek Prose, or an equivalent—writing with the accents required). Goodwin's Grammar is preferred. Special stress is laid upon a thorough knowledge of Grammatical Forms, and the inflections of the noun and verb. Candidates would do well to read an additional book of the Anabasis, and of the Iliad, where this can be done without sacrifice of thoroughness in the formal requisitions. Some experience in giving written answers to set questions is advantageous.

The Continental pronunciation of the vowels and diphthongs is preferred in both Latin and Greek.

Mathematics.

Arithmetic, and the Metric System; Algebra, through Quadratic Equations involving one unknown quantity—including Radicals, and Fractional and Negative Exponents; Geometry, the First Book of Euclid, or an equivalent—that is, the Propositions in other text-books relating to the Straight Line and Rectilinear Figures, not involving Ratio and Proportion.

Equivalents will be received in place of the books named above; but it is recommended that the candidates be prepared for examination on the requirements as specified.

OTHER REQUIREMENTS.

Candidates for admission to any class higher than the Freshman are examined in the previous studies of the Class which they wish to enter. or their equivalents, as published in the last annual Catalogue. Applicants for admission to the Sophomore Class are also examined in the preparatory studies. Applicants for admission to the Junior or Senior Class, *coming from another College*, are examined only in the studies of the year preceding that which they wish to enter. While it is important that the

applicants should have studied French, Physiology, and Natural History, an examination in these studies is not required.

No person is admitted to the College as a candidate for the Degree of Bachelor of Arts after the beginning of the First Term of the Senior Year.

All candidates for admission to any Class must bring with them testimonials of moral character and attainments, preferably from their last instructors; and if the candidate has been a member of another College or University, he must produce a certificate from its President or Faculty that he is free from censure in that institution.

No candidate is admitted into the College without an examination and a vote of the Faculty.

On the second day of the First Term, Thursday, at 9 o'clock, A. M., the entering students meet in the Old Chapel for the registration of their names and subscription to the following pledge, required by the Board of Trustees:

We, the undersigned, do individually for ourselves promise, without any mental reservation, that we will have no connection whatever with any secret society, nor be present at the meetings of any secret society in this or any other College so long as we are members of the College of New Jersey; it being understood that this promise has no reference to the American Whig and Cliosophic Societies. We also declare that we regard ourselves bound to keep this promise, and on no account whatever to violate it.

COURSE OF STUDY.

The course for the degree of Bachelor of Arts extends over four Academical years, and besides Philosophy, Literature and the Classics, embraces extensive instruction in the Sciences. It includes two classes of studies, the required and the elective, attendance upon which is obligatory; there are also optional courses, with voluntary attendance, in connection with some of the departments of study.

All the studies of Freshman and Sophomore years are required, and are of a fundamental nature, such as Latin, Greek, Mathematics, Rhetoric and Modern Languages. It is assumed that these are indispensable parts of a liberal education in which every candidate for the Bachelor's degree should be well grounded.

From the opening of Junior year onwards, the student, by availing himself of the elective system, may to a certain extent shape his course with reference to his individual tastes, or the profession which he has in view. The following are the Junior electives, of which the student selects two: Mathematics, Greek, Latin, French and German, and Anglo-Saxon. The required studies of the Junior year are Psychology, Logic, Metaphysics, Mechanics, Physics, Physical Geography, Geology, History, Science and Religion, English Literature and Oratory.

In the Senior year the range of Electives is wider. Each student selects four of the following subjects: History of Philosophy, Political Science, Latin, Greek, Mathematics, Practical Astronomy, Physics, History, Chemistry, Laboratory Chemistry, French and German, and Museum Work in Biology or Palæontology. The required studies of the Senior year are Ethics, Physical Geography, Chemistry, Astronomy, English Literature, Science and Religion, and Oratory.

Optional courses so ordered as not to conflict with the time allotted to the regular instruction of the course are offered in connection with several departments. These courses are designed to benefit those who wish to extend their reading or study in certain branches; they amplify the subjects taken up in the regular course, and in some cases conclude with a special examination upon which is based a certificate of proficiency.

The Freshman class recites in divisions according to rank, in order to proportion the work to individual ability; rapid progress can thus be made by those who have special aptitudes for certain studies. No similar divisions are made in the upper classes. In awarding the Bachelor's degree and assigning the final rank, the student's work for the whole four years is taken into account.

The following is a statement of the various courses of instruction:

Psychology and History of Philosophy.

THE PRESIDENT.

The whole Junior Class are required to take the President's course in Psychology, in which he mixes lectures and recitations,

employing in the earlier part of his course a text book by himself on the "Senses External and Internal." He treats of Mind and Body, and then of the Faculties of the mind. I. The Cognitive Powers. 1. The simple Cognitive or Presentative; Sense Perception and Self-Consciousness. 2. The Reproductive or Representative; Retention; Phantasy; Association: the Recognitive (Memory); Composition (Imagination); Symbolic (Language). 3. The Comparative, discovering Relations of Identity, Comprehension (whole and part), Resemblance, Space, Time, Quantity, Active Property, Cause and Effect. II. The Motive Powers. 1. The Conscience. 2. The Emotions. 3. The Will.

To an Elective Class of Seniors he lectures on the HISTORY OF PHILOSOPHY. 1. The ancient Greek Philosophy, using "Mayor's Ancient Philosophy, from Thales to Cicero." II. Modern Philosophy, from Bacon to the present time.

Science and Religion.

PROFESSOR SHIELDS.

The Department of the Harmony of Science and Religion extends through the second and third terms of the Junior and Senior years, with required courses in both classes and an elective course in the Senior Class. The required Junior course embraces (1) the harmony of the physical sciences and natural theology; the Divine Being and attributes as illustrated by astronomy, geology and anthropology; (2) the harmony of the mental sciences and natural religion; the doctrine of a future life, divine government and probation as reconcilable with psychical, ethical and metaphysical theories.

The required Senior course embraces the harmony of science and revealed religion: the miraculous, prophetical, historical, and philosophical evidences of Christianity, and its consistency with the whole system of the physical and psychical sciences.

The elective Senior course includes the study of the sciences as connected with revealed religion; their history, classification, and methods; normal and existing relations of reason and revelation; emerging religious controversies in the different sciences, the problem of their adjustment, and the issuing philo-

sophical system. While the required course aims to vindicate Christian evidences as usually taught in Colleges, the elective course may also have the incidental effect of promoting that sound, ultimate philosophy which results from the harmony of science and revelation and looks to the gradual purification and completion of human knowledge.

The instruction is given chiefly by lectures, with the occasional use of Butler's Analogy as a text-book, and in a part of the course, monthly reviews and extemporaneous essays preclude some of the disadvantages of oral recitations and a final examination.

The Dickinson Prize is offered in this department to the Junior Class, and the Science and Religion Prize to the Senior Class.

Logic, Metaphysics, Moral and Political Science.

PROFESSOR ATWATER.

Junior Year.

1. Logic Required—Pure Logic, comprising the Laws of Thought in Concepts, Judgments and Reasonings, Immediate and Mediate. Applied Logic, in the doctrine of Fallacies and Logical Method, Logical Praxis. Text-book, Atwater's Manual of Logic.

2. Metaphysics Required—Laws and conditions of Truth and Being, and of the knowledge of the same. Examination of Time, Space, Substance, Identity, Personality, Cause; taught by lecture, and concurrent references to various authors.

Senior Year.

3. Ethics Required—*a*. Pure Ethics, Psychologically considered with reference to the faculties of the mind concerned in Moral Action; Metaphysically, with reference to theories of the Nature of Virtue. *b*. Applied Ethics, unfolding the laws of Duty in various spheres of action; taught from Hickok's Moral Science, as edited by Seelye, and supplemented by lectures.

4. Economics Required—In their fundamental Nature and Ground; Labor, Capital, Production, Exchange, Commerce, Money, Credit, Transportation, Railroads, etc. Text-book,

Wayland's Political Economy, edited by Chapin, and supplemented by lectures.

5. Elective Course in Political Science—*a*. The State in itself and as related to Sociology, to Ethics, the People, Government, Law, Popular Sovereignty, Diverse Forms of Civil Polity, including the Federal System, particularly as shown in the State and National Governments of the United States; taught by recitation upon lectures and upon the chapter on Civil Government in Hickok's Moral Science, with special reference to Woolsey's Political Science, and other leading authors. *b*. The Inter-relation of States. International Law, its Origin and Authority, as related to Nations at peace or war, and to the obligations of Neutrals and Belligerents; taught by recitation upon Woolsey's International Law, and reference to other writers.

History of Art.

DR. MARQUAND.

A course of lectures on the History of Architecture is offered as a Senior Elective by Allan Marquand, Ph.D. The course consists of one exercise a week and extends over the first session only. For the present year, students who have selected this course are expected in the second and third sessions to pursue the elective with Professor Shields in Science and Religion.

The Architectural course will be limited to the consideration of Byzantine, Moorish, Romanesque and Gothic buildings. Special examples will be selected and studied from an historical, æsthetic and structural point of view.

Greek.

PROFESSORS CAMERON, ORRIS AND WINANS.

Freshman Year.

The Freshman Class is divided into four sections, each of which receives five hours of instruction in Greek every week during the first and second sessions, and four hours during the third.

POETRY.—Homer: The Iliad; Books XVI., XVIII., XXII. Epic Forms and Syntax; Prosody and Scanning; The Homeric

Question, Antiquities and Mythology. Two exercises a week during the first and second terms, and one during the third. Professor Cameron.

PROSE.—The Greek Historians; varied selections from Herodotus, Thucydides, and Xenophon, during the first and second sessions. In the third session the same, or as an alternate, Select Dialogues of Lucian; Lucian and his times. Two exercises a week throughout the year.

Review of Greek Grammar, with elucidations. Goodwin's doctrine of the syntax of the verb. Review of elementary Greek Prose Composition, with written exercises; followed by advanced Greek Prose (Sidgwick's). In the third session, Outlines of Greek History. One exercise a week throughout. Professor Winans.

NOTE.—As the authors and the amount read during the Freshman year may vary from year to year, the following is indicated as a *minimum* for applicants for Sophomore standing: Homer, Books XVI., XVIII., XXII. Greek Historians, 100 pages, selected at pleasure; one-half of this, however, to be from Herodotus or Thucydides.

Sophomore Year.

The Sophomore Class is divided into sections, each of which receives four hours of instruction in Greek every week throughout the year.

GREEK ORATORY.—The Olynthiacs and Philippics of Demosthenes; Demosthenes and the Political Condition of Greece in his time; Selections from the Rhetoric of Aristotle; Exercises in Greek Prose Composition; Dictations on Greek Lexicology, stating and explaining the laws pertaining to the formation, derivation and definition of the words of the language. The first half of the Class reciting in two subdivisions, each subdivision four hours a week during the first term; the second half in two subdivisions, each four hours a week during the second and third terms. Professor Orris.

POETRY.—Euripides, the Medea. The Origin of Tragedy; Analysis of the Medea; Life of Euripides. The second half of the class reciting two hours a week during the first term, and the first half two hours a week during the second and third terms. Professor Cameron.

PROSE.—Xenophon: the Memorabilia (selections); the Symposium. The Times of Socrates. The Socratic Ethics. Greek Domestic Life. The second half of the class reciting two hours a week during the first term, and the first half two hours a week during the second and third terms. Professor Winans.

Junior Year.

REQUIRED GREEK.—Lectures on the Physical Geography of Greece as affecting the character and language of the people; on the Origin of the Greek Alphabet; on the Characteristics of the Greek Language; the Rise and Character of Greek Literature; Epic Poetry; Lyric Poetry; History; Tragedy; Comedy; Oratory; Philosophy; Greek Antiquities; Manners and Customs; Remains of Cities and Buildings. One hour a week during the first term. Professor Cameron.

ELECTIVE GREEK.—Attic Tragedy: Æschylus—Selected Dramas. Lectures on the Works of Æschylus, and on the Origin, Character and Relations to Modern Literature of the Attic Drama. Two hours a week for half the year. Professor Orris.

Attic Comedy: Aristophanes—Selected Plays; with Prolegomena. Two hours a week for half the year. Professor Winans.

N. B.—In the present year Tragedy is read in the first session; Comedy, (Aristophanes' Frogs and Plutus) in the second and third sessions. In the coming year ('83–'84) Comedy (Aristophanes' Birds) will be read in the first session; Tragedy (Æschylus' Prometheus Bound and Agamemnon) in the second and third.

OPTIONAL.—The Odyssey of Homer, or advanced Greek Prose Composition. Professor Orris.

Senior Year.

ELECTIVE GREEK.—In the Senior year there are two independent elective Greek courses, each course occupying one hour a week throughout the year.

A. TRAGEDY.—Sophocles: The Œdipus Tyrannus. Criticism of the Play, the Plot, the Significance of the Tragedy; the rise and development of the Drama among the Greeks. Aris-

totle's Ars Poetica, and the Laws of Dramatic Composition. Description of the Greek Theatre. For the present year a course of lectures on Greek Literature will also be delivered by Professor Cameron.

B. GREEK PHILOSOPHY.—Plato: Selected Dialogues. Lectures on the Philosophy of Plato: on Greek Literature and Philology; on the theories of the Origin of Language, and on the causes which underlie and determine Dialectic Varieties. Professor Orris.

OPTIONAL.—Theocritus, with a Review of his Relations to subsequent Poetry. Professor Orris.

Latin.

PROFESSOR PACKARD, PROFESSOR SLOANE AND MR. MOORE.

Instruction given in the Department of Latin Language and Literature and Science of Language, involves,

First—The constant training of classes in the Etymology and Syntax of the language, and in the power to translate it accurately and fluently into idiomatic English.

Second—Instruction in Latin Prose Composition. The instruction in the Freshman Class is conducted with a view to familiarizing the students with the grammar and idioms of the Latin language. To this end the following plan is pursued: An exercise prepared for the purpose is dictated on one day; the student prepares a written translation and gives it in on the second day, and on the third day the class recites on it, turning the English into Latin as they would turn a Latin text into English. This occupies half of each hour; the other half is devoted to the explanation of minor peculiarities in the use of Latin words which an ordinary school grammar would leave unnoticed. The instruction is conveyed by dictating the principle, by adducing examples, and by a constant interchange of question and answer with the students, who translate these examples at sight, either from English into Latin or from Latin into English.

During the Sophomore Year the above-mentioned course is continued on a higher and more difficult plane. The exercises required to be translated into Latin are idiomatic English, being taken from histories or speeches, and the impossibility of trans-

lating them literally is intended to give to the students some acquaintance with Latin style. The additional instruction is therefore more especially devoted to the rhetorical expression of the Romans, their choice and arrangement of words and the distinguishing characteristics of their diction.

Third—The reading and interpretation of particular authors, whether literary or historical, or both combined. This implies, as collateral branches of study, the History of Roman Literature and the Archæology of Roman Life, social and political. Roman History is studied in its three leading periods: First, in connection with portions of Livy's Histories, the early history down to the times of the Gracchi; second, in connection with Cicero's Letters, the period from the Gracchi to the Empire; and, third, in connection with Juvenal's Satires and Pliny's Letters, the earlier Empire, especially its moral and religious aspects in contrast with Christian Truth and Christian Life.

The exercises with the two lower classes are chiefly recitations, accompanied, or rather interspersed with constant communication of collateral illustrative instruction suggested by the text-book, calculated to quicken and broaden the interest of the student, with care, however, not to infringe upon the frequency and thoroughness of the recitations required of the student. Occasional lectures of a more formal character are introduced in the Sophomore year. These treat, in connection with Cicero's Letters, the representative characters and historical scenes and topics there found; and in connection with Horace, the History of Literature down to his time, his contemporaries, the introduction and influence of Greek, especially Alexandrian literature at Rome, and his own characteristics as to topics, style, views of life, etc. In reading Terence and Plautus, attention is directed to their archaisms in orthography, grammar and style; to the influence of Greek literature upon Roman letters; to the introduction of Greek metres into Latin and their application as showing the probable colloquial pronunciation of Latin; to the life and morals of the Romans as illustrated by their comedy, and to the general literary quality of their writings.

The class reviews in each recitation the preceding lesson, and at the close of the term again reviews the whole play; it

reads during the year about fifteen pages at sight, and has several written recitations of the same character as those which are required of the Freshman Class. In addition the class is required to prepare one essay each year on some given subject connected with the author. The last subjects were Terence and Plautus compared, and Roman Comedy.

In the Junior year lectures are more frequent; in connection with Juvenal and Pliny, treating of the other sources of our more intimate knowledge of the social and moral condition of the Empire in Italy and the Provinces; and, in connection with such of Cicero's rhetorical, ethical, or religious treatises as are read, treating of literary life and training at Rome, the sources and character of Roman Philosophy, and the Religion of Rome. In the Senior year lectures occupy about one-third of the time, being in part illustrative of Lucretius, but chiefly upon the Science of Language, its General Principles; Physiology of Speech; Phonetic Laws; Formation of Words; History of Inflections; Comparative Laws of Syntax.

The authors used in the order of the curriculum are Livy; Horace's Odes; Georgics of Virgil; Selected Letters of Cicero; Terence; Horace's Satires and Epistles; Juvenal's Satires and Selected Letters of Pliny; Suetonius; Plautus; Cicero's Treatises (De Oratore, De Natura Deorum, De Fato, etc., varying from year to year); Lucretius De Rerum Natura; Bruns, Fontes Juris Romanæ, with use of Corpus Inscriptionum Latinarum, and Ritschl, Priscæ Latinitatis Monumenta; Selections from Seneca's Moral Epistles; also from Tertullian and St. Augustine.

The instructors suggest questions for special investigation, and designate volumes and parts of volumes, illustrative of the author or period under study, to be read in private by the class during the term, upon which questions are put in examination papers, eliciting extended written answers.

On one or two evenings of each week such students as wish, meet with Professor Packard for the study of some Latin author collateral with the class-room work. The Sources of Roman Law is proposed as a topic to be thus pursued.

English Literature.

PROFESSOR MURRAY.

The study of English Literature is required during the Junior and Senior Years, and one hour a week is occupied with lectures and recitations.

Junior Year.

The course begins with lectures on Early English Literature. During the remainder of the first term, Chaucer is studied, some of his poems being read by the class and lectures given on others.

In the second and third terms, lectures are given on Spenser, the Origin of the English Drama, the Dramatists before Shakespeare, Shakespeare, and Ben Jonson. Besides this, the study of the Historical Development of the English Language is carried on as a parallel course, the text-book of Professor Lounsbury being in use.

Senior Year.

The Senior year in this department is wholly occupied with the Study of Literature. In the first term, the subjects discussed are Bacon, Sir Thomas Browne, Milton's Prose and Poetry. In addition to the lectures, plays of Shakespeare are critically examined by the class—the plays this year being Hamlet for the first term, King John and the Tempest for the second and third. The course concludes with lectures on the principal writers of the reign of Queen Anne, and of the Literary Restoration, the course being varied from year to year. An optional class is formed during the second term, in which authors not treated in the class-room are read. Essays are also required from both the Junior and Senior Classes, in which literary subjects chiefly are discussed.

Rhetoric and English Language.

PROFESSOR HUNT.

Freshman Year.

The elements of Rhetoric are studied as embraced in the following subjects: Diction, Sentences, Figures, Laws and

Processes of Discourse, Poetry and Versification. This instruction is given by text-book and lecture. Essay writing is an essential part of the course, and is continued through the year.

Sophomore Year.

The study of Rhetoric is continued by lecture in the discussion of the Qualities and Forms of Discourse. The study of the English Language is pursued by text-book and lecture. This latter course embraces such topics as the Study of Words, their poetic, historical and moral character; their rise and decline; their distinctions and practical uses; English spelling and pronunciation, English etymology and affixes, with a brief historical survey of the origin and progress of the language. English composition is continued through the year.

Junior Year.

The study of Anglo-Saxon as an elective branch is begun. On the basis of March's text-books the student is drilled in the forms and principles of grammar, and taught to read with ease the simplest prose and poetry of First English. In connection with this grammatical and textual study, instruction is given by lecture on a large variety of subjects—philological and historical—rightfully included in such a course. The students are also encouraged to private reading on any of the topics presented in the class-room.

Oratory.

PROFESSOR RAYMOND.

Freshman Year.

First Term. — Weekly Lectures and Drill in Elocution, explaining the meanings and teaching the methods of Gesture and Vocal Emphasis, with Readings and Declamations required from all the Class. Text-book, Raymond's Orator's Manual.

Sophomore Year.

Exercises by Divisions of the Class made according to degrees of proficiency. Two private Rehearsals of Declamations, and one written Oration required from all. Optional Instruction in Vocal Culture.

Junior Year.

Lectures on Oratorical Composition and the Analysis and Illustration of Themes. One written Oration, with criticisms on style and analysis privately explained and two Rehearsals in Delivery required from all. Optional Rehearsals; Lectures and Exercises in Vocal Culture, Emphasis and Gesture.

Senior Year.

Course of the Junior Year continued. Two written Orations, Analyses, Personal Criticisms, Private Rehearsals and Public Speaking before the whole College required from all, with prizes in Oratory, Delivery, Disputation and Poetry. (See "Fellowships, Prizes, Scholarships.") Between fifteen and twenty of the best writers and speakers among the highest honor men are assigned parts at Commencement. Optional Lectures on the Principles of Criticism; and Exercises in the subjects of the Department.

Exercises in English Composition,

Corrected by the Professors either of English Literature, Rhetoric or Oratory, are required as follows, viz: Freshman Year, five or six Essays; Sophomore Year, five or six Essays and one Oration; Junior Year, five Essays and one Oration; Senior Year, two Essays and two Orations. During every year of the course several prizes or honorary appointments are given for excellence in essay writing and in public address, either by the College, or by the Cliosophic or American Whig Societies, acting through committees appointed from their own members of the Faculty. (See heading "Fellowships, Prizes, Scholarships.")

Modern Languages and Literature.

PROFESSORS KARGÉ AND HUSS.

Comprises the study of the French and German languages. The former begins as a required study in the third term of the Freshman and continues as such throughout the Sophomore Year. The number of hours a week devoted to class instruction is two, and to make it more effective, recitations are con-

ducted in divisions of thirty students each. For a better apprehension of the thought as well as greater facility in the use of the language, oral and written recitations alternate.

With the close of the Sophomore year, students are required to pass a final examination which embraces the essential parts of descriptive grammar, special stress being laid on a thorough knowledge of the verb and its construction,—besides fluency in rendering ordinary French into English at sight.

In the Junior year, Modern Languages being no longer a required study, the student is at liberty to choose between classical and modern languages. If his choice falls upon the latter, he continues for two hours a week during the first term the French course, which consists in reviewing grammar and in reading Racine's "Athalie," in order to acquaint him with the elegancies of the language, and to give him an incentive to independent study.

At the close of the first term the final examination in French is passed, and the German language takes its time and place.

The course in German embraces the acquisition of the preliminary rules of grammar, pronunciation, written exercises and translation. The third term is devoted to reviewing the work done in German during the previous term.

Modern languages continue to be elective in the Senior year one hour a week, with the difference that instead of two, as is the case in the Junior year, only one may be chosen by the student, provided he is in possession of the requisite preliminary knowledge of the language he chooses. The First Term and half of the Second are exclusively devoted to a critical reading of dramas from the works of eminent writers, such as Corneille, Racine, Molière, Lessing, Schiller and Goethe.

The students having obtained an appreciation of the merits of these authors, a course of lectures on the history and literature of these languages is delivered, embracing the salient points of their growth, development, and the influence they exerted upon modern civilization.

Professor Kargé has the exclusive charge of the Senior and Junior Classes, while in the two lower classes he divides the instruction with Professor Huss.

Mathematics.

PROFESSOR DUFFIELD, PROFESSOR ROCKWOOD, DR. HALSTED, AND MR. FINE.

In the Freshman Year there is one exercise a week throughout the year in Algebra under Professor Rockwood, three a week in Geometry during the First and Second Terms, and the same number in Mensuration during the Third Term under Mr. Fine. The text-book in Algebra is Wells' University Algebra. Euclid is employed as the Text-book in Geometry both because of its historical associations and its decided superiority for the purpose of mental discipline to any modern Text-book. A thorough knowledge of Geometry and familiarity with its more important Propositions can only be obtained by extended practice in the demonstration of Theorems and Problems not contained in the Text-book. This exercise occupies a prominent place in our course of instruction in Geometry. The Text-book in Mensuration is Halsted's Treatise on Metrical Geometry, in which the principles of the Science are discussed, the Rules and Formulas demonstrated, and numerous examples given for practice—the data expressed in terms of the Metric System.

The Sophomore Class have three exercises a week throughout the year in Mathematics, under Professor Duffield. For the First Term the studies are Plane Trigonometry with its application to the Mensuration of Heights and Distances, Analytical Trigonometry, and Navigation; for the Second Term, Surveying including Levelling and Laying out Railway Curves, and Spherical Trigonometry; for the Third Term, Analytical Geometry.

In the Junior Year, Mathematics is an Elective study. The class have two exercises a week throughout the year under Professor Duffield. For the First Term the studies are Analytical Geometry and the Differential Calculus; for the Second Term, the Differential Calculus; for the Third Term, the Integral Calculus. During the Sophomore and Junior Years, Loomis' Series of Text-books are used—supplemented largely by oral instruction, and numerous Exercises in addition to the "Examples for Practice" of the Text-books.

The Senior Class in Mathematics (Elective) have one exercise a week throughout the year under Dr. Halsted. The course for the current year is Analytical Geometry of Three Dimensions with the discussion of Hyper Space and Curved Space, Byerly's Differential and Integral Calculus, with Lectures on the different Theories of the Calculus, the History of Mathematics, and the Elements of Quaternions.

A characteristic feature of our method of teaching Mathematics is the prominence given to oral instruction. The exercises of the class-room are conducted on the principle that it is the business of the Teacher to teach and not merely to hear recitations. Throughout the course, Lectures on the History as well as the Principles of the different branches of study are given by the Instructors.

Astronomy.

PROFESSOR YOUNG AND MR. MCNEILL.

General Course—Required.

This course occupies two hours weekly during the first term, and one hour weekly during the second and third terms. The exercises consist of recitations from Newcomb and Holden's "Astronomy for High Schools and Colleges," supplemented by lectures.

In the first term the principal subjects treated are astronomical instruments, the methods of finding time, latitude and longitude, the earth in its astronomical relations, and the moon. In the second and third terms the sun, the planetary system and the fixed stars are discussed.

The aim of the course is to impart a knowledge of the most important facts of the science, with an understanding of its principles, but the higher mathematics of the subject are not attempted. The class have frequent opportunities for examining the most interesting objects with the telescope.

Practical Astronomy—Elective.

One exercise weekly during Senior year. Text-book, Loomis' "Practical Astronomy." The exercises consist in lectures upon the various instruments and their use, with recita-

tions from the text-book, and the discussion of the observations made by the class.

When the weather permits each member of the class is required to spend from two to six hours weekly in making and reducing observations. The principal subjects embraced in the course are the following:

I. SEXTANT AND REFLECTING CIRCLE.

(a) Adjustment and errors.

(b) Determination of local time by altitudes of the sun (or stars).

(c) Latitude by circummeridian altitudes of sun.

(d) Latitude by altitude of the pole star and a corresponding southern star.

(e) *Latitude and time by Gauss' "three-star method."*

II. TRANSIT INSTRUMENT.

(a) Theory of errors and adjustment.

(b) Determination of local time by star observations, the azimuth correction being determined by a pair of circumpolars.

(c) *Reduction of a complete set of time-observations by the method of least squares.*

III. THE ZENITH TELESCOPE.

(a) Determination of latitude from star observations, the instrumental constants being independently determined.

(b) *Determination of latitude, together with the instrumental constants, by observations reduced by method of least squares.*

IV. PRIME VERTICAL INSTRUMENT.

Determination of latitude and instrumental constants by star observations.

V. ASTRONOMICAL THEODOLITE.

(a) Azimuth by observations of the pole star.

(b) *Latitude and time by Gauss' "three-star method."*

VI. MERIDIAN CIRCLE.

(a) Determination of instrumental constants.

(b) Determination of star places (right ascension and declination), including the reduction of apparent place to mean.

(c) *Investigation of errors of graduation and periodic errors of micrometer screw.*

VII. EQUATORIAL.

(a) Adjustment of the instrument.

(b) Determination of the place of a comet or minor planet by ring micrometer.

(c) Study of the spectra of sun spots and solar prominences.

(d) *Measurement of double stars with wire micrometer.*

VIII. MISCELLANEOUS.

(a) Value of level divisions determined with "level-trier."

(b) Determination of personal equation with Eastman's personal equation machine.

(c) *Form and size of transit instrument pivots determined with pivot spherometer.*

NOTE.—From the problems italicised, a selection is made in arranging the course, no one student taking them all.

Physics.

PROFESSOR BRACKETT AND MR. MAGIE.

Junior Year.

Prescribed Course.—This course is conducted by means of recitations and lectures; Ganot's Treatise is used as a text-book. The subjects treated are:

First term—Elementary Mechanics; General Properties of Bodies; Hydro-dynamics; Pneumatics; Acoustics; Electro-statics.

Second term—Electro-dynamics; Magnetism; Optics.

Third term—Optics finished; Heat.

Special prominence is given to the study of Electricity and Optics.

The well selected apparatus with which the department is supplied, is constantly employed to illustrate and enforce the principles discussed.

Four hours a week, during the first term, and three hours a week during the second and third terms are allotted to this course.

During the second and third terms, experiments illustrating principles of General Chemistry and Chemical Physics are first performed by the students, after which the most important classes of organic compounds are studied, and finally a few special examinations are made, such as: Analysis of potable waters; examination of milk; study of the general properties of the alkaloids, with a few characteristic tests; properties of disinfectants, etc. The object of the course is to train the student, as far as possible, in chemical manipulation by means of experiments, which shall both illustrate chemical principles and furnish practical knowledge likely to be of use in any subsequent professional or scientific study.

The course requires about four hours a week; three hours being generally devoted to laboratory work, and one hour to lectures or recitations.

Geology and Physical Geography.

PROFESSOR GUYOT; PROFESSOR SCOTT, ASSISTANT IN GEOLOGY; PROFESSOR LIBBEY, ASSISTANT IN PHYSICAL GEOGRAPHY.

I. GEOLOGY AND PALÆONTOLOGY.—The course in Geology, conducted by Professor Scott, begins in the second term of the Junior year, *i. e.*, about the first week in January. The required course is continued through the second and third terms, two hours a week, and includes about forty lectures, besides recitations. The subjects treated are (1) Dynamical Geology, (2) Structural Geology, including Petrography, (3) Historical Geology. In addition to this there is a supplementary course for those who desire to take special honors in Geology, which takes up the subject of Structural Geology in a more complete manner and affords opportunity for both field and laboratory work. The attendance upon these lectures is entirely voluntary.

The course in Palæontology, under Professor Scott, is one of the elective studies of the Senior Class, and occupies about three hours a week throughout the year, including one lecture and two hours of laboratory work a week. This course is chiefly devoted to the subject of Vertebrate Palæontology, and is a continuation and expansion of the course on Historical Geology of the Junior year. The laboratory work is done with the

coöperation of Professor Osborn, and devoted to a dissection of those recent types best adapted to throw light on the structure of their fossil allies; also to an examination of the fossils and their comparison with each other.

For advanced students there are especial facilities for study in the large number of undescribed fossil Vertebrates collected in the West by the three scientific expeditions, sent out by the College in 1877, 1878 and 1882.

II. PHYSICAL GEOGRAPHY.—The Earth in the age of man, comprising two parts:

A. The Geography of Nature, or Physical Geography proper.

1. The Earth in the Solar system; Astronomical Geography, especially with reference to Climatology.

2. The Earth as a whole, or Physics of the Globe; its form, dimensions, density, and weight; its proper temperature, volcanoes and earthquakes; its magnetism.

3. The surface of the earth.

a. The Lands, their arrangement; morphology of the continents; laws of relief.

b. The Waters and their movements; Inland waters and continental drainage; Oceanography; Tides and marine currents; facts and their causes.

c. The Atmosphere; Climatology; Laws of distribution of temperature; Winds and Rains; Snow, ice and glaciers.

Lectures and recitations twice a week by Professor Libbey during the first and part of second term. Text-book, Guyot's Physical Geography.

4. Laws of the distribution of life. Plants and Animals.

B. Geography of Man, or Historical Geography; Human races, characteristics and law of distribution, contrasted with the distribution of life in nature; the historic races and their functions in history. The continents as instruments for the development of human societies. The continents of Nature: Africa, South America, Australia. The continents of History: Asia, Europe, North America. Their special functions in the progressive development of mankind. About ten lectures, with oral and written examinations, in the third term, by Prof.

Guyot. Text-book, The Earth and Man. Both courses are abundantly illustrated.

Biology.

PROFESSORS SCHANCK, MACLOSKIE, OSBORN AND LIBBEY.

The required studies in this branch are included in a course which occupies one hour a week through the Sophomore year. Professor Schanck opens the course with a series of lectures, illustrated by models and diagrams, upon Human Anatomy and Physiology. Professor Macloskie resumes the work during the second term in a series of lectures on Elementary Zoölogy. In the third term Professor Macloskie conducts a series of recitations in Botany, accompanied by practical work in the examination of plants. In the Junior year there is, strictly speaking, no biological work, although the required course in Geology, under Professor Scott, includes very full accounts of the development and the principal characters of the animal life of the different geological periods. In the Senior year students may elect either (1) Biology, or (2) Palæontology. The latter (2) is conducted by Professor Scott, with practical biological work under Professor Osborn. (See Department of Geology.) The biological elective course (1) is conducted by Professor Macloskie with the coöperation of Professor Osborn. This course occupies from two to five hours a week, and includes a system of laboratory work and lectures on (1) Structural Botany and the Invertebrate Animals, under Professor Macloskie; (2) On the Anatomy of the Vertebrates, and the influence of natural environment, under Professor Osborn. Last year's course, during the first half year, was on the structure and physiology of the principal Plant types and types of Invertebrates, including among the latter such forms as the Amoeba, the Lobster, the fresh-water Mussel, and the Ascidians. The last half year was occupied by five lectures on general anatomy, and five upon animal structure as influenced by light, climate, latitude, marine currents, etc., with practical work upon the Embryology of the chick. The Laboratory work connected with this elective includes dissection and the use of the microscope upon typical plants and animal types. Part of the laboratory hours are optional.

Curator Scott in some years superintends a similar course of instruction with this class in the Laboratory of the Zoölogical Museum.

In the department of Biology there is also an optional course of lectures and recitations upon Histology, conducted by Professor Libbey. The normal tissues only are discussed, and as wide a range of comparative study of the tissues in the animal kingdom is made as the time allotted allows. Especial attention is devoted to injecting, hardening, preserving, staining and mounting specimens, and students are carefully drilled in the use of the microscope. The hours of instruction are from 2 to 5 on each Friday afternoon of the second and third terms, but the laboratory is open at all hours to its regular students for private investigation.

SYNOPSIS OF COURSE.

FRESHMAN YEAR.

First Term.

LATIN—Livy, (Book I.) Leighton's Roman History. Latin Prose Composition. GREEK—Homer's Iliad, (Books XVI, XVIII, XXII.) Selections from Herodotus, Thucydides, Xenophon; Greek Grammar; Greek Prose Composition. MATHEMATICS — Geometry (Todhunter's Euclid). ENGLISH — Rhetoric (Hart's). Diction and Sentences. Essays. ORATORY —Lectures. Exercises and Personal Drill in Elocution.

Second and Third Terms.

LATIN—Livy, (Books XXI, XXII). Roman History (Leighton's continued). Horace: Odes (Two Books). Latin Prose Composition. GREEK—Homer's Iliad; Herodotus, Thucydides, Xenophon, Selections; Dialogues of Lucian; Williams' Selections. Outlines of Greek History. Greek Prose Composition, Sidgwick's. MATHEMATICS — Algebra. Geometry (Todhunter's Euclid). Ratio and Proportion. Halsted's Mensuration. ENGLISH — Rhetoric (Hart's). Figures, Special properties of Style, Poetry, Versification. FRENCH—Grammar (Substantive, Adjective, Numeral, Pronoun), with oral and written exercises.

SOPHOMORE YEAR.

First Term.

LATIN—Selected letters of Cicero. Roman History from the Gracchi to Augustus. Terence: Adelphi. Latin Composition. Exercises in Rhetoric and Style. GREEK—Demosthenes: the Olynthiacs and Philippics. Rhetoric of Aristotle: Selections, Word-Formation. Laws of Phonetic change. Euripides, The Medea. Xenophon's Memorabilia, and The Symposium. Greek Composition. MATHEMATICS—Plane Trigonometry, Mensuration and Navigation. ENGLISH—Trench, Lectures, Essays. FRENCH—Grammar completed. Dumas: Napoléon. ANATOMY and PHYSIOLOGY. ORATORY—Lectures. Exercises and Drill in Elocution. Written orations.

Second and Third Terms.

LATIN—Horace: Selected Satires and Epistles. Terence: Heautontimorumenos. Latin Composition. GREEK—Demosthenes: the Olynthiacs and Philippics. Rhetoric of Aristotle, Selections. Word-Formation. Laws of Phonetic Change. Euripides: The Medea. Xenophon's Memorabilia, and The Symposium. Greek Composition. MATHEMATICS—Surveying. Spherical Trigonometry. Analytical Geometry. ENGLISH—Study of Words (Trench's). Essays. Lectures. FRENCH—Syntax. Dumas: Napoléon. NATURAL HISTORY. ORATORY—Lectures. Exercises and Drill in Elocution and Oratory.

JUNIOR YEAR.

First Term.

REQUIRED STUDIES.

LOGIC—Atwater's Manual. PSYCHOLOGY—McCosh's "The Senses". PHYSICS. GREEK—Lectures on Greek Literature. GEOLOGY. ENGLISH LITERATURE—Chaucer. Lectures. Essays. ORATORY—Lectures, Exercises and Private Criticism upon the Analysis and Illustration of Themes and the composition and delivery of Orations.

ELECTIVE STUDIES.

LATIN—Satires of Juvenal, with History of the Empire. Plautus: The Trinummus. GREEK—Æschylus. Selected

Dramas. Lectures on the Attic Drama. MATHEMATICS—Analytical Geometry. Differential Calculus. FRENCH—Syntax. Racine's Athalie. Corneille's Cid. GERMAN—Grammar. Oral and written translations from English into German. Whitney's German Reader. ANGLO-SAXON—March's Anglo-Saxon Grammar and Reader.

Second and Third Terms.

REQUIRED STUDIES.

PSYCHOLOGY—McCosh's "Intuitions of the Mind." LOGIC AND METAPHYSICS. PHYSICS. GEOLOGY. SCIENCE AND RELIGION—Natural Religion and the Mental Sciences. ENGLISH LITERATURE—Lectures. Essays. ORATORY—Lectures, Exercises and Criticism continued.

ELECTIVE STUDIES.

LATIN — Juvenal continued: Selected Letters of Pliny. Plautus: The Trinummus. GREEK—Aristophanes: Frogs and Plutus. MATHEMATICS — Differential and Integral Calculus. FRENCH—Exercises in Syntax. Racine's Athalie. Corneille's Cid. GERMAN—Grammar, and Prose Composition. Whitney's German Reader. ANGLO-SAXON—Grammar and Reader.

SENIOR YEAR.

First Term.

REQUIRED STUDIES.

ASTRONOMY. ETHICS—Hickok's Moral Science. PHYSICAL GEOGRAPHY. CHEMISTRY — Fowne's. Roscoe's. Barker's. Miller's. ENGLISH LITERATURE—Lectures. Essays. ORATORY—Lectures, Exercises and private Criticism continued.

ELECTIVE STUDIES.

LATIN AND SCIENCE OF LANGUAGE—Lucretius. Peile's Philology with Lectures. GREEK—Sophocles: Œdipus Tyrannus. Aristotle's Ars Poetica. Plato: Selected Dialogues. Greek Literature and Philology. HISTORY OF ARCHITECTURE. MATHEMATICS. ASTRONOMY—Practical. PHYSICS—Practical course in the Laboratory. CHEMISTRY—Applied. LABORATORY CHEMISTRY. HISTORY OF PHILOSOPHY—Ancient. Mayor's History

of Ancient Philosophy. FRENCH—Translations from Sadler's English into French. Critical review of the French Drama. Lectures on the History and Literature of the language. GERMAN—Review of Grammar. Lessing : Minna von Barnhelm. Goethe : Hermann und Dorothea. Faust, 1st part. Schiller : Jungfrau von Orleans. Lectures on the History and Literature of the language. POLITICAL SCIENCE—Woolsey's Political Science. MUSEUM WORK : BIOLOGY or PALÆONTOLOGY.

Second and Third Terms.

REQUIRED STUDIES.

ASTRONOMY. PHYSICS. POLITICAL ECONOMY—Wayland Chapin's Ed. PHYSICAL GEOGRAPHY. CHEMISTRY. ENGLISH LITERATURE—Lectures. Essays. SCIENCE and RELIGION—Christian Science and Philosophy. ORATORY — Composition and delivery of Orations continued.

ELECTIVE STUDIES.

LATIN and the SCIENCE OF LANGUAGE—Lucretius. Lectures on Comparative Inflection and Syntax. GREEK—Sophocles : Œdipus Tyrannus. Plato, and his Philosophy. Greek Literature and Philology. MATHEMATICS. ASTRONOMY—Practical. PHYSICS. CHEMISTRY—Applied. LABORATORY CHEMISTRY. HISTORY OF PHILOSOPHY—Modern. FRENCH—Continuation of studies of first term. GERMAN—Continuation of studies of first term. POLITICAL SCIENCE—Woolsey's International Law. MUSEUM WORK : BIOLOGY or PALÆONTOLOGY.

SCHEDULE OF LECTURES AND RECITATIONS.

	TIME.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY 1st Term.	THURSDAY. 2d & 3d Terms.	FRIDAY.	SATURDAY.
Seniors.	9 A. M.	Bible (8½)	Phys. Geo.	*Palæontology.*	Eng. Lit.	Phys. Geog.	*Chemistry.*	
	10 "	*Prac. Astron.*	Phys. Geo.	*Hist. Phil.*	*Math. H.*	Sci. & Rel.	*Lab. Chem.*	*Greek. C.*
	11 "	Phys. Geog.	Phys. Geo.	Eng. Lang. & Lit.	*Hist. Architec.*	Sci. & Rel.	Astronomy.	Chemistry.
	3 P. M.	*Mathematics.*	*Greek. O.*	*Mod. Lang. Phys.*	Astron.			
	4 "	*Latin. P.*	*Mod. Lang.*	*Museum Work.*	Astron.	Phys. Geo.	Chemistry.	
Juniors.	8½ A. M.	Geology. 1st Tm		Psychology.	*Greek. O.*	*Greek.*		Bible.
	9 "		Physics 1 Geol 2				Geol. 2, 3 Tm.	
	10 "	Geology. 1st Tm			*Mod. Lang. H.*	*Mod. Lang.*	*Anglo-Saxon.*	
	11 "	Physics.	*Mathematics.*	Geology. Metaph.	*Greek. O.*	*Greek.*	*M. Lan. H. Math.*	Sci. & Rel.
	3 P. M.	*Latin.* P. & S.	*Latin.* P. & S.				Greek Lit.	
	4 "	Physics.	Physics.	Logic. Metaph.	Eng. Lit.	Eng. Lit.	Greek Lit.	
Sophomores.	8½ A. M.	Bible.			Lat. P. Anat.	Lat. P. Nat. His.	Greek.	Mod. Lang.
	9 "							
	10 "	Greek.	{ Mod. Lang.	Mathematics.	Latin. S.		Greek.	
	11 "	Greek.	{ Rhetoric.	Mathematics.	Latin S. Anat.	Lat. P. Nat. His.	Greek.	
	3 P. M.	Greek.	Mathematics.	Mathematics.				
	4 "	Greek.	Mathematics.	Mathematics,	Latin. P. & S.	Latin.	Latin. P. & S.	

C.—Prof. Cameron. H.—Prof. Halsted. H.—Prof. Huss. P.—Prof. Packard. S.—Prof. Sloane.

Required studies in Roman letters; Elective studies in *Italics.*

The Schedule of Freshman Studies is issued each term.

EXAMINATIONS, STANDING AND GRADUATION.

EXAMINATIONS.

Regular Examinations.—At the end of each term each class is ordinarily examined in the studies of that term. At the close of the third term the examination in certain subjects embraces not only the work of that term, but the course of the entire year.

Partial Examinations and Written Recitations.—In addition to the regular examinations, partial examinations or written recitations are held from time to time during the term.

Divisional Examinations.—In the Freshman Class, a special examination is held early in the first term, the results of which determine the formation of the class into graded divisions. These are reorganized at the beginning of the second term, according to the results of the last preceding regular examination.

General Regulations.—Examinations are for the most part conducted in writing, but in certain subjects are oral in whole or part. Private examinations are not allowed except in extreme cases, and by special permission of the Faculty. Absence from an examination, except for reasons of absolute necessity, will be regarded as a serious delinquency, and a subsequent examination will not be granted except by a vote of the Faculty.

Regulations in respect to the removal of conditions.

Those who shall appear to the Faculty, on examination, to be deficient in their studies, will be dealt with according to the nature and extent of the deficiency. Any member of either of the three lower classes who shall fail to pass the examinations at the end of the first or second term in more than two departments, shall be dropped from his class and shall be required to enter a lower class or to withdraw from College. If the failure be in not more than two departments the student may be allowed a second trial at the beginning of the next term; if he fail in this second examination, he shall employ a tutor approved by the Faculty, and be allowed four weeks for further preparation, but if he still fails to pass, he shall be required to enter a lower class or withdraw from College. The same rules shall

apply to the examinations at the close of the third term, except that in the case of failure in not more than two departments the student shall be required to pass a satisfactory examination at the beginning of the next Academic year, and will not be allowed additional time for preparation, nor a third trial.

In the Freshman Class two 'departments' are recognized in Greek, in Latin, and in Mathematics. In each of these the professorial instruction is considered as constituting one department, and that under the tutor or corresponding officer another.

In the application of these regulations, special cases, arising from illness or other causes, will be duly considered.

On the second day of each term, Thursday, at 10 o'clock A. M., all delinquent or unexamined students are required to meet in the old Chapel to make arrangement with their instructors for examination in the subjects in which they are deficient. In the first term this examination is to take place immediately at the beginning of the term; in the second and third terms two weeks are allowed for it. Any student not present as thus directed, or not prepared for examination at the time appointed, will be debarred from another opportunity, except by special vote of the Faculty.

STANDING.

The results of the term examinations are combined with those of the recitations to decide the relative standing or grade of the student during the term. In computing grades, each study, elective or required, is estimated relatively to the others according to the number of hours which it occupies in the weekly schedule of lectures and recitations. The conduct of the student and his attendance also affect his standing. The maximum grade in each department is one hundred; the minimum, or passing grade, is fifty. A student whose grade, as determined by the combination of his examination and recitation marks, falls below fifty, is conditioned, and in order to continue with his class must be re-examined. A report of the standing of each student is made to his parent or guardian by the Registrar of the College at the close of the first term and at the end of the year. The last report gives the student's standing for the year.

The final grade of a student is calculated from all the grades received by the student during his College course.

GRADUATION.

Bachelor's Degree.

Students whose final grade is above fifty are ordinarily recommended by the Faculty for the Degree of Bachelor of Arts, and if the recommendation is approved by the Trustees, they receive diplomas signed by the President and the Clerk of the Board of Trustees.

No student will be recommended to the Trustees for a degree who fails to pass a satisfactory examination at the close of the last term of the Senior year. A student whose grade at this final examination is below fifty in any department will forfeit the title to a degree, and it can only be restored by express vote of the Faculty upon sufficient reasons given, and in accordance with the following regulations:

(1.) Any member of the Senior Class failing at the final examination in but *one* of his studies may, by vote of the Faculty, be allowed a re-examination, and if successful in passing this may be recommended to receive his degree with his class.

(2.) Any member of the Senior Class failing to pass the final examination in *two* of his studies may, by vote of the Faculty, be allowed a re-examination, and if successful in this may be recommended for a degree *at some time in the next Academic year.*

Commencement Appointments.

Commencement Orations, indicative of general or special excellence, are awarded by the Faculty to such students as are deemed worthy of distinction. The Latin Salutatory is ordinarily awarded to the student who stands first in the class, and the English Salutatory to the student who stands second. The Valedictory is awarded with special regard to the qualifications of the student as a Valedictorian, as well as on the ground of Scholarship. Orations and Theses designated as Philosophical, Classical, Mathematical, Physical, Metaphysical, Ethical, Historical, Literary, Belles Lettres, French, and German, are awarded to students eminent in the corresponding departments.

In awarding all honors, regard is had to the moral conduct of the candidates.

THE

JOHN C. GREEN SCHOOL OF SCIENCE.

FOUNDATION AND ORGANIZATION.

This institution is a department of the College of New Jersey, founded upon an endowment by Mr. John C. Green.

It had been felt for some time that the College should be able to offer more extended and special instruction in the Natural Sciences, and accordingly the School of Science was established in 1873, with a course in General Science for undergraduate students, and also with graduate courses in Science. The course in Civil Engineering was added in 1875, by further endowment from the residuary legatees of Mr. Green, and subsequently the elective courses in certain branches of the Natural Sciences were established.

The undergraduate courses now offer, according to the choice of the student, efficient education in the Natural Sciences in general, or a thorough training in the study of Civil Engineering and of various other branches of Science, pure and applied. At the same time, a liberal education in certain Academic studies is secured to all candidates for a degree.

Graduate courses of study for the degrees of Master of Science and Doctor of Science are also provided; as well as special courses which may, under certain conditions, be taken by students who are not candidates for any degree.

Instruction is given by lectures and recitations, as well as by practice in the laboratories, drawing rooms, museums and field, while excursions are made to different points of interest.

Before receiving his degree every student must present to the Faculty an acceptable thesis on some scientific subject, the nature of which will depend upon the course he has pursued.

ADMISSION.

ENTRANCE EXAMINATIONS.

The first examination for admission will begin in Princeton on Thursday, June 21st, at 11 A. M., and will continue through the forenoon of Friday. The second will begin on Tuesday, September 11th, at 11 A. M., and continue through the forenoon of Wednesday. *Attendance is required at the beginning of the examination.*

Simultaneously with the entrance examinations in Princeton, examinations are also held in the following cities, viz.: Cincinnati, Louisville, Chicago, St. Louis and San Francisco; and elsewhere when necessary. The precise places in which the examinations are to be held can be learned by application to the President.

Examinations at other times and places than those specified are very inconvenient and often impracticable, and applicants for admission at other than the regular days are required to pay $10 into the treasury.

Candidates for admission to the Freshman Class must be at least sixteen years of age. They will be examined in the following books and subjects:

ENGLISH: Orthography; Punctuation; English Grammar; Simple English Composition; Geography, Ancient and Modern; U. S. History, (Scott). MATHEMATICS: Arithmetic entire, including the Metric System, a practical knowledge of which is indispensable; Algebra through Quadratic Equations of one unknown quantity, including Evolution, Radicals and Theory of Exponents; Geometry, first book of Euclid, or its equivalent, (first book of Chauvenet). LATIN: Grammar; Cæsar (three books of the Commentaries); two books of the Æneid of Virgil.

Equivalents in other text books than those specified will be received, but the works of at least two Latin authors must have been read.

It is recommended that all candidates should receive instruction in Free-hand Drawing before their entrance.

NOTE.—Candidates for the Freshman Class entering in 1883 and thereafter will be required to pass examinations in the following subjects:

ENGLISH: As above. MATHEMATICS: Arithmetic, as above; Algebra, through Quadratic Equations of one and two unknown quantities, including Evolution, Radicals and Theory of Exponents; Geometry, Plane Geometry entire (five books of Chauvenet or their equivalent).

In preparing for this examination it is recommended that Chauvenet's Geometry be studied, as that is the text-book used here, but an equivalent in other books will be accepted.

LATIN: Five books of Cæsar's Commentaries, with especial attention to the Grammar, including Parsing.

OTHER REQUIREMENTS.

Candidates for admission to an advanced class will be examined in the studies previously pursued by the Class they propose to enter.

All candidates for admission must bring satisfactory testimonials of moral character, and if the candidate has been a member of another College, University, or similar institution, he must produce a certificate from its President or Faculty that he is free from censure in the same.

No candidate is admitted without an examination and a vote of the Faculty.

On the second day of the First Term, Thursday, at 9 o'clock, A. M., the entering students meet in the Old Chapel for the registration of their names and subscription to the following pledge, required by the Board of Trustees:

We, the undersigned, do individually for ourselves promise, without any mental reservation, that we will have no connection whatever with any secret society, nor be present at the meetings of any secret society in this or any other College so long as we are members of the College of New Jersey; it being understood that this promise has no reference to the American Whig and Cliosophic Societies. We also declare that we regard ourselves bound to keep this promise, and on no account whatever to violate it.

UNDERGRADUATE COURSES.

Undergraduate courses are provided for the Degrees of Bachelor of Science, and of Civil Engineer.

Candidates for the degree of Bachelor of Science pursue the course in *General Science* until the end of the first term of the Junior year, after which they may continue in that course, or choose one of the following three *Elective Courses: Chemistry and Mineralogy; Biology and Geology; Mathematics and Mechanics.*

In the Senior year students taking the course in General Science, or the elective course in Mathematics and Mechanics, may pursue a *select course in Physics*, or *Practical Astronomy.*

The student must announce his election before the end of the first term of the Junior year. He cannot afterward change his course without the permission of the Faculty.

The course in *Civil Engineering* diverges from that in General Science at the very beginning of the Freshman year.

Special Students.—For persons who may desire to devote especial attention to any of the scientific studies of the School, arrangements can be made with the Professors of those branches, if the Professor in charge shall, after due investigation, decide that the applicants can pursue such studies with advantage. Every facility will be offered for their advancement in the studies selected, with the personal supervision of the Professor and full access to the collections, etc.; but it must be distinctly understood that this opportunity is intended only for those who desire to attain proficiency in special branches, and not for students who have failed to keep up with the regular classes. Special students will be required to give evidence of satisfactory progress in their studies. To those passing successful examinations in the branches selected, certificates of proficiency will be given. The branches open to special students include: *Geology; Mineralogy; Biology; Physics; Practical Astronomy; Analytical and Applied Chemistry; Assaying; Topography.*

COURSE IN GENERAL SCIENCE.

This course is especially intended to furnish instruction in the Natural Sciences in general, and the required studies of the course are indicated in the Synopsis on p. 82. After the beginning of the second term of the Junior year the student pursues, under the direction of the Faculty, elective studies in various branches of science, to occupy the hours not devoted to the required studies.

STATEMENT OF STUDIES.

Modern Languages.

PROFESSORS KARGÉ AND HUSS, AND MR. HARRIS.

Instruction in Modern Languages comprises German and French as a required study throughout the entire course.

During the first term of the Freshman year the study of German occupies five hours a week. The instruction relates to grammar, pronunciation, writing and so much of translation as is requisite for the illustration of grammatical precepts. In the second term German is continued three hours a week, and the same method pursued as in the preceding term. French is also studied two hours a week, the students being made familiar with the rules of pronunciation and with the parts of speech, while the verb receives especial attention. The third term is devoted to a careful review of the work done during the two preceding terms.

A student to be qualified to enter the Sophomore Class must, in his final examination for the Freshman year, give evidence that he is well grounded in all essential rules pertaining to the etymological part of grammar, especially so in the practical application of the regular verb.

In the Sophomore year, four hours a week being allotted to Modern Languages, each occupies two. Fluency in reading and correctness in pronunciation form the main feature of the exercises, while grammar and translations, written and oral, are never lost sight of.

At the final examination of the Sophomore year the student is required to possess a thorough knowledge of all the forms and modifications of the flexible parts of speech, especially those of the irregular verbs; also the essential rules of construction, as well as reading at sight any subject bearing on science.

In the Junior year, three hours being allotted to Modern Languages, one at a time is taken up in each term, and the instruction mainly consists in translating English scientific subjects into either German or French, while the language taught is made use of as a conveying medium. To be qualified for the Senior Class the student must be thoroughly familiar with the text of either of these languages, in order to use them as means for reference or research.

In the Senior year the first term completes the course of Modern Languages, the three hours a week allotted to them being devoted to a general review, and to writing themes.

Professor Kargé instructs the Senior and Junior Classes; Professor Huss, the Sophomore Class; Mr. Harris, the Freshman Class.

Mathematics.

PROFESSOR ROCKWOOD.

The Mathematical course, which is the same for all students of the School of Science, is intended to be so framed as to supply the necessary foundation in knowledge and training for the later studies of Physics and Mechanics, and especially finds its natural continuation in the applied mathematics of the course in Civil Engineering. The fact that the student's mathematical knowledge is thus to be *used* in other departments is carefully kept in view, not only in selecting the subjects to be studied, but in arranging their order and the relative time to be devoted to each, so that he may be properly prepared for the work before him. In this connection also especial mention may be made of the constant blackboard practice, which is a prominent feature of the instruction, and gives the student a practical as well as a theoretical familiarity with the processes, preparing him

for their ready use afterward in the special investigations of his later studies.

The student is required, at the entrance examination, to be acquainted with Arithmetic, including the Metric System; Algebra through Quadratic Equations, including Radicals and the Theory of Exponents, and with the principles of Plane Geometry as developed in the first five books of Chauvenet's Geometry. (These are the requirements according to the advanced standard which goes into effect in 1883.)

During the whole of the first year the student devotes five hours a week to Mathematics. In the first term he finishes the study of Algebra (Wells), discussing the various forms of Series, the subject of Logarithms, and the Theory of Equations. In the second term the remainder of Chauvenet's Geometry is studied, the subject being illustrated by a numerous and valuable collection of models, mostly from original designs. With the Geometry is at present combined a brief course in Mensuration, which it is intended to amplify as soon as the increased requirements for admission, by transferring Plane Geometry to the preparatory study, shall afford the necessary time. A part of the third term is devoted to Plane Trigonometry, in which the student becomes accustomed to the practical use of Logarithms, and in like manner a part of the first term of the Sophomore year is given to Spherical Trigonometry. The second and third terms of the Sophomore year are devoted to the study of Analytical Geometry (Loomis), both of the Plane and of Space, with special reference to the Conic Sections. In the first term of the Junior year the Differential and Integral Calculus are studied, with five exercises a week. Throughout the whole course, the blackboard drill is combined with abundant oral explanation and occasional formal lectures.

The Calculus ends the course in the Pure Mathematics required of all students. They pass then to the applications of their work in the special departments of Engineering, Physics, Astronomy, etc. Provision is, however, made for the further special study of the subject by the elective course in Mathematics and Mechanics.

Graphics.

MR. WILLSON.

INDUSTRIAL DRAWING.—This study occupies seventy hours during the first term of the Freshman year, and embraces instruction in the use of drafting instruments and materials in the various operations of Industrial Science Drawing; such as tinting and shading, both with pen and brush; lettering; the representation of metals, wood, rocks, earth, tiles and other materials of architectural and engineering construction; architectural drawings to scale, from measurements; solution of problems relating to compound curves suitable for arch "face-lines," etc. Text book: Warren's "Drafting Instruments and Operations."

PLANE PROBLEMS, PROJECTION DRAWING AND ELEMENTS OF DESCRIPTIVE GEOMETRY.—Instruction in these subjects occupies 120 hours during the second term of the Freshman year, and embraces:

(a). The construction of the cycloid and other trochoidal curves, of the spirals and of the paths traced by points in link motions.

(b). The orthographic projection of points, lines, surfaces and solids, with problems of sections, interpenetrations, and developments relating to the latter, including the five regular solids.

(c). Axonometric (including Isometric) projections, with drawings from models, to scale, from measurements.

(d). Elementary problems of shades and shadows.

(e). Elementary problems of the point, line and plane in Descriptive Geometry. Text book: Angel's Practical Plane Geometry and Projections.

DESCRIPTIVE GEOMETRY.—This embraces a course of 72 hours, in the first term of the Sophomore year, on developable, double-curved and warped surfaces, spherical projections and trihedrals.

SHADES, SHADOWS AND PERSPECTIVE; a course occupying 30 hours in the second term of the Sophomore year. Text books: Warren's "Descriptive Geometry," "Perspective," "Shades

and Shadows;" Angel's Practical Plane Geometry and Projections.

FREE-HAND DRAWING; a course occupying 64 hours in the Junior year. Drawings from photographic and other models; including plaster casts, architectural constructions, specimens in the museum collections, etc., preparatory especially to advanced work in the study of Biology.

ELECTIVE COURSES.—Stereotomy (see course in Civil Engineering), may be elected by any student taking the elective course in Mathematics and Mechanics; and both Stereotomy and Machine Drawing (see course in Civil Engineering), may, in the Junior and Senior years, be elected by students taking the course in General Science, when no interference with other studies is occasioned.

DRAFTING ROOM and MODELS.—The recitation and drafting room of the department of Graphics is well lighted and furnished with model cases and desks for the accommodation of forty-six students, each having his separate desk. The drawing courses are illustrated by a large collection of models, including a number of duplicates of the Olivier models, several warped surface models from designs by the instructor, and one hundred and seven models from the Messrs. Schröder, Darmstadt, illustrating Descriptive Geometry, Perspective, Shades and Shadows, Architectural framings, Stereotomy, Kinematics and Machinery.

General Chemistry.

PROFESSOR SCHANCK.

The instruction in this study occupies two hours a week during the Sophomore year, being the same as that in the required course in General Chemistry, of the Academic classes. Students pursuing the course in General Science also attend Professor Schanck's elective course in Applied Chemistry, during the Senior year.

Analytical Chemistry and Mineralogy.

PROFESSOR CORNWALL; MR. MARSH, Assistant.

MINERALOGY.—The elements of Crystallography are taught by a short course of lectures during the third term of the Fresh-

man year. Determinative Mineralogy, with the blowpipe, is taught during the whole of the first term of the Sophomore year, in a course of four exercises a week, (two hours each). In the Senior year a course of lectures on Descriptive Mineralogy, with practice in the determination of minerals by their physical characteristics, together with the optical study of minerals and rocks, may be elected by the students in the course in General Science.

ANALYTICAL CHEMISTRY.—During the second and third terms of the Sophomore year, the students attend lectures, with recitations, and also work in the laboratory, pursuing the study of Qualitative Chemical Analysis, with Fresenius' Manual as a guide. Four exercises a week (of two hours each) are given to the study of the detection of bases, together with instruction in the tests for the common acids, inorganic and organic. During the Junior and Senior years instruction in Quantitative Chemical Analysis may be taken, as an elective.

Geology.

PROFESSOR SCOTT.

At present the instruction in Geology, so far as it is a required study, is the same as that mentioned on p. 60, but next year it is proposed to instruct the Scientific Classes separately. The course will lay great stress upon Structural Geology, and practical work in this subject will be carried on, both in the field and the laboratory. Dynamical and Historical Geology will also be carefully studied, but not to the same extent.

The text books recommended are: Leconte's Elements of Geology, Dana's Manual, Green's Geology for Students, Penning's Field Geology, and Von Cotta's Rocks classified and described.

Botany.

PROFESSOR MACLOSKIE.

During the Freshman year Botany is required of all candidates for the Degree of B. S. There are five exercises a week (of two hours each), for fourteen weeks. The work of the class is exclusively practical, and includes the examination of

plants as to their morphology, histology, modes of development, and physiology. Students are taught to use their hands and eyes, to avail themselves of microscopical appliances, to master the characters of the larger orders of plants, and are exercised in phytography by describing and drawing what they see. The text-books and manuals are used for reference, but each student is required to prepare his own text book by noting down the results of his own examination of typical plants. Botanical excursions are made in the spring season to the surrounding districts, and an original thesis on some botanical subject is required of each student. (Books recommended: Bessey's *Botany;* Gray's *Manual of Botany;* Steele's *Fourteen Weeks in Botany.* Books of reference: Sachs' *Text Book of Botany;* Le Maout and Decaisne's *Botany;* Bentham and Hooker's *Genera Plantarum;* De Candolle's *Prodromus.* Also the monographs on special groups of Flowering and Flowerless Plants).

Zoology.

PROFESSORS MACLOSKIE AND OSBORN.

During the Junior year all candidates for the Degree of B. S. have an elementary course of Zoology, of one exercise (two hours) a week. The first term, under Professor Osborn, is devoted to lectures, with practical exercises and recitations on Vertebrate Animals; and the second and third terms, under Professor Macloskie, to similar work on different groups of Invertebrates.

Studies pursued in common with the Academic Classes.

The following studies are pursued either together with the Academic classes, or essentially as stated under the corresponding titles in the Academic course, and under the same instructors:

Psychology or Logic, according to the election of the student; Political Economy (included in the Political Science of the Academic course); English Literature, the Essays and Oratory required from the Senior Class in the Academic course

being replaced in the Scientific course by the preparation and reading of Theses on Scientific subjects; Rhetoric and English Language; Oratory; Astronomy; Human Physiology and Anatomy.

SYNOPSIS OF COURSE.

The required studies of the course in General Science are indicated in the following synopsis, the bracketed figures denoting the number of exercises in each subject:

FRESHMAN YEAR.

First Term.

MATHEMATICS: Algebra completed (Wells'); [65]. ENGLISH: Rhetoric (Hart's); Diction and Sentences; Essays; [13]. MODERN LANGUAGES: German; Otto's Grammar, to Lesson XXXII. inclusive, with oral and written exercises; [65]. BOTANY: Flowering Plants; Vegetable Histology (Bessey's *Botany*; [30]. DRAWING: Elements of Industrial Drawing; [35]. ORATORY: Elocution.

Second and Third Terms.

MATHEMATICS: Plane and Solid Geometry (Chauvenet); Mensuration; Plane Trigonometry; [95]. ENGLISH: Rhetoric (Hart's), Figures, Special Properties of Style, Poetry, Versification; [19]. MODERN LANGUAGES: German; Otto's Grammar, reviewed and completed: Translations in Otto's Reader combined with conversational exercises; French; Grammar—as far as the Irregular Verbs inclusive, with oral and written exercises; [95]. BOTANY: Flowerless Plants; Herbarizing (Bessey's *Botany;* Gray's *Manual of Botany*); [35]. DRAWING: Projections and Descriptive Geometry; [60.] MINERALOGY; Crystallography; [9]. ORATORY: Elocution.

SOPHOMORE YEAR.

First Term.

DESCRIPTIVE GEOMETRY; [36]. GENERAL CHEMISTRY: Inorganic; [26]. MINERALOGY: Determinative; [52]. HUMAN ANATOMY AND PHYSIOLOGY; [13]. ENGLISH: Lectures;

Essays; [13]. GERMAN: Hodge's course in Scientific German, Part I. FRENCH: Reviewing the course of the previous year; Grammar completed; Syntax; [Modern Languages, 52.] MATHEMATICS: Spherical Trigonometry; [16.]

Second and Third Terms.

MATHEMATICS: Analytical Geometry (Loomis); Surveying; [76]. DESCRIPTIVE GEOMETRY: Shades, Shadows and Perspective; [15]. GENERAL CHEMISTRY: Inorganic; [38]. ANALYTICAL CHEMISTRY: Qualitative Analysis; [76]. ENGLISH: Study of Words (Trench); Essays; [19]. GERMAN: Hodge's Course in Scientific German, Part II., combined with translations from Scientific English into Scientific German. FRENCH: Syntax completed; Keetel's Analytical French Reader, embracing translations from French into English and English into French; Conversational Exercises; [Modern Languages, 76]. ORATORY: Lectures, Exercises and Personal Drill in Elocution.

JUNIOR YEAR.

First Term.

MATHEMATICS: Differential and Integral Calculus; [65]. PHYSICS: Elementary Mechanics; Properties of Bodies; Acoustics; [52]. ZOÖLOGY: Vertebrates (Packard's *Zoölogy;* Balfour's *Comparative Embryology*); [13]. ENGLISH LITERATURE: Chaucer; Lectures; [13.] MODERN LANGUAGES:—German; Lessing—French; Racine. [39]. LOGIC, [26]; or PSYCHOLOGY; [13]. DRAWING: Free-hand; [13]. ORATORY: Lectures and Criticism on Oratorical Composition and Delivery.

Second and Third Terms.

PHYSICS: Heat; Light; Electricity and Magnetism; [57]. ANALYTICAL CHEMISTRY: Quantitative Analysis.* ZOÖLOGY: Vertebrates; [19]. ENGLISH LITERATURE: Lectures; [19.] MODERN LANGUAGES:—German: Schiller; Goethe.—French; Molière; Corneille; [57.] LOGIC, [10]; or PSYCHOLOGY, [19]. GEOLOGY; [38.] DRAWING: Free-hand; [19].

SENIOR YEAR.

First Term.

ASTRONOMY: General; [26]. GENERAL CHEMISTRY: Applied; [13]. ANALYTICAL CHEMISTRY: Quantitative Analysis.* BIOLOGY; [13]. ENGLISH: Lectures on English Literature; [18]. MODERN LANGUAGES: German: Goethe; History of Literature. French: Reading Scientific Prose at sight; History of Literature; [39.] ORATORY: Reading of Essays on Scientific subjects.

Second and Third Terms.

ASTRONOMY: General; [18]. GENERAL CHEMISTRY: Applied; [18]. ANALYTICAL CHEMISTRY: Quantitative Analysis.* BIOLOGY; [13]. ENGLISH: Lectures on English Literature; [18]. POLITICAL ECONOMY; (36].

*Varies according to elective studies also taken.

COURSE IN CHEMISTRY AND MINERALOGY.

This course, which is designed to afford thorough instruction in Analytical and Technical Chemistry, is one of the elective courses for the Degree of Bachelor of Science, and students electing it enter upon the special studies of the course at the beginning of their Junior year. They pursue, also, the following required studies of the Junior and Senior years in the course in General Science:—Modern Languages; Political Economy; Psychology, or Logic; English Literature; Physics; Astronomy; Geology; Zoölogy; Drawing; Oratory.

The remainder of the time during these two years is devoted to the following special studies of this course:—

QUALITATIVE ANALYSIS.—This subject, previously pursued so far as stated on page 79, is continued, so as to include the detection of inorganic and organic acids, as well as bases, in complex substances.

QUANTITATIVE ANALYSIS.—A full course, including the analysis of chemical and metallurgical products, ores, fertilizers,

sugars, water, etc. Volumetric methods are freely used whenever they are appropriate.

ASSAYING.—Furnace assay of Ores; Bullion assays.

BLOWPIPE ANALYSIS.—Qualitative (required); Quantitative (optional).

TECHNICAL CHEMISTRY and APPLICATIONS OF CHEMISTRY to Medicine and Hygiene, including Toxicology, Analysis of Potable Waters, Adulterations of Food; Disinfectants. Lectures and recitations.

MINERALOGY.—Descriptive and Determinative (the latter chiefly based upon the physical characters of the minerals).

LITHOLOGY.—Descriptive and Determinative, with microscopical examination of typical rocks.

In all of the above subjects, except Technical Chemistry, the instruction embraces lectures by Professor Cornwall, with recitations upon the lectures and upon portions of the manuals mentioned below, and also laboratory practice under the Professor and Mr. Marsh. All chemical reactions are fully explained by the use of chemical formulas, and the student must show that he understands the theory of all the operations he performs or describes.

The graduating Thesis presented by the student must embody the result of the student's own work in the Laboratory, whether it be experimental or analytical.

Text books. Fresenius's Manuals of Qualitative and Quantitative Chemical Analysis; Cairns's Quantitative Analysis; Ricketts's Notes on Assaying; Cornwall's Blowpipe Analysis. Reference is frequently made to other works and to chemical periodicals.

COURSE IN BIOLOGY AND GEOLOGY.

The special objects of this course are to qualify students who elect it to become original investigators or teachers of the special branches of Science included in it. Students electing it remain candidates for the degree of Bachelor of Science.

Until the close of the first term of Junior year the studies are not specialized, but are the same as in the course in General

Science. The special studies in Biology and Geology begin with the second term of the Junior year, and embrace the following subjects :

I. Zoölogy during Junior and Senior years, including Comparative Anatomy, Osteology, and Embryology ; 149 exercises. Professor Macloskie.

II. Comparative Anatomy of the Vertebrates during Junior and Senior years ; 94 exercises. Professor Osborn.

III. Histology during second and third terms of Junior year ; 20 exercises. Professor Libbey.

IV. Palæontology (to be added to the course in 1883–84). Professor Scott.

Instruction is also given in the following branches of Natural History :

Physiology, during Senior year ; 35 lectures. Professor Macloskie.

Geology, during Junior year ; 38 lectures. Professor Scott.

Physical Geography, during Senior year ; 36 lectures. Professors Guyot and Libbey.

Botany (optional). Professor Macloskie.

I. Zoölogy.

In this branch, which occupies the second and third terms of Junior year, and continues during the whole of Senior year (two or three recitations weekly), Professor Macloskie gives a series of practical exercises with recitations on the different groups of Invertebrated Animals, using as type-forms for study Amœba, Hydra, Planaria, the Earth-worm, Cray-fish, Cockroach, Mussel and Ascidium ; also the Comparative Osteology of the Vertebrates, requiring each student to describe the skeleton of a Mammal, comparing each member with the homologous parts of other Vertebrates ; also Comparative Physiology, using Huxley's and Foster's Text-book, and with the actual examination of the structure and functions of the organs. Other text-books used in this course are Huxley's *Anatomy of Invertebrated Animals*, Brook's *Hand-book of Invertebrate Zoölogy*, Huxley on the *Cray-fish*, Packard's *Zoölogy*, Mivart on the *Cat*, Flower's *Osteology of the Mammalia*, Parker on the *Shoulder*

Girdle, Leidy's *Fresh-water Rhizopods of North America*, Balfour's *Comparative Embryology*.

II. THE COMPARATIVE ANATOMY OF THE VERTEBRATES.

(1) The Birds; their skeleton, muscles, brain, digestive and vascular systems, as modified for their peculiar habits of feeding and flight. This course is given in Junior year. (2) The Mammals; their Anatomy studied by inter-comparison and by the light thrown upon it by the Anatomy of the Reptiles, Fishes and Birds. This course includes the Elementary Embryology of the Chick and Frog, also the development of the Skull. The works of Huxley, Balfour and Parker are employed. The principal feature of the course is the laboratory work and the constant practice in drawing from the specimens and dissections.

III. HISTOLOGY.

This subject embraces a study of the normal tissues, and covers as wide a range as possible in the vertebrate kingdom. Special attention is directed to the methods of microscopical work, both in the management of the instrument and in the processes of injection, preserving, staining and mounting specimens, the student being required to do these operations for himself. The laboratory is open at all hours for private investigation on the part of the student, and material is provided.

The regular exercises are held from 2 to 5 P. M. on Wednesday of each week during the second and third terms of Junior year. A fee of $5 is charged to cover the expense of mounting material, slides, cover glasses, etc.

IV. PALÆONTOLOGY.

This study extends through the Senior year for those students who elect Biology. It includes practical work in the Museum, the collections of which offer every facility for the thorough pursuit of this subject. Sufficient undescribed material is in the Museum to offer those students who desire to take a Palæontological subject for their graduating Thesis, abundant opportunity to do so. This course will be given in full in 1883–84.

COURSE IN MATHEMATICS AND MECHANICS.

The required studies in this elective course are the same as in the course in General Science, but after the beginning of the second term of the Junior year, students electing the course in Mathematics and Mechanics will pursue such of the studies named below, and in such order, as may be determined from time to time by the Professor of Mathematics in the School of Science, the Professor of Mechanics and the Professor of Physics.

Rational Mechanics; Mathematical Theory of Fluid Motions; Mathematical Theory of Strength of Materials; Thermodynamics; Higher Analytical Geometry and Calculus; Quaternions; Method of Least Squares; Graphics.

COURSE IN CIVIL ENGINEERING.

This course is designed to fit its graduates for entering the profession of Civil Engineering. It also provides for the instruction, in any of its specialties, of graduates of this College, and others who may be found suitably prepared.

The requirements for entrance to the Freshman Class are the same as in the course for the Degree of Bachelor of Science. The regular course of study occupies four years, and the degree conferred on graduates is that of Civil Engineer, (C. E.)

An important feature of this course is the introduction of Field Work and other technical studies into its earlier years; but this divergence from the course in General Science is not sufficient, during the first year, to make it difficult for the student to change, if desirable, from one course to the other before the opening of the Sophomore year.

STATEMENT OF STUDIES.

Studies pursued in common with the Classes in General Science.

The instruction in these studies is the same as stated on p. 75, *et seq.*, and under the same instructors. Modern Languages (of the Freshman and Sophomore years); English Literature;

Rhetoric; Oratory; Psychology or Logic (according to the election of the student); Political Economy; Mathematics; Descriptive Geometry; Shades, Shadows and Perspective; Industrial Drawing; General Astronomy; General Chemistry; Mineralogy (of the Freshman and Sophomore years).

Technical Studies.

The instruction in these studies is given by Professors McMillan, Brackett, Rockwood, Young, Libbey, Mr. McMaster, Mr. Willson.

In many of the technical studies of the course in Civil Engineering the instruction is based on a thorough preliminary training in *Mathematics*, and a thorough mastery of the ordinary divisions of this science is, therefore, indispensable to the successful study of such subjects as Mechanics, Physics, etc., which follow it.

Great stress is also laid in this Course on the study of *Graphics* as a Science, both in its general development and in its application to the practice of designers and builders.

RATIONAL AND APPLIED MECHANICS and the THEORY OF MACHINES.—The instruction in these subjects covers a wide field of study, beginning with the general discussion of Motions and the action of Forces and ending with the deduction of practical formulae relating to the strength or stability of different structures, the power, efficiency and strength of hydraulic, steam and air motors, and to the various problems which arise in the practice of Hydraulic Engineers.

In dealing with these subjects, rigidly mathematical treatment is generally used, and higher analysis is freely employed wherever it is expedient; yet proper weight is given to graphic methods of analysis and the student's attention is especially directed to those problems in which they can be employed with marked advantage.

EXPERIMENTAL MECHANICS.—The instruction in this study consists mainly of laboratory work. Its purpose is to familiarize the student with the physical properties of building mate-

rials; to teach him by actual experiment how to conduct tests and to deduce therefrom coefficients of strength, elasticity, etc.; how to determine coefficients of hydraulic flow and resistance; and how to gauge, by the aid of indicators and dynamometers, the power of steam and other motors. Under this head come also problems in the erection of structures.

AN ENGINEERING LABORATORY has been provided for this work. It contains the following experimental apparatus:—A torsional testing machine; a wire and cement tester; various kinds of current meters and water gauges; a Worthington water meter; a contrivance for determining the hydraulic slopes within earthen retaining banks; a flushing tank; a reaction wheel and other minor pieces of hydraulic apparatus; a double acting steam pump; a locomotive link and valve motion, and a ten-horse power compound engine with condenser, indicators, gauges, and a "Prony" brake.

The illustrative apparatus of the Laboratory comprises rail sections and joints; specimens of the products of iron and steel mills and of other building materials; a Sturtevant blower; models of water-wheels, of trestles, and of the details of iron bridge and roof joints, of vaults and arches, and a 25-foot iron model of a single track railroad bridge, with a complete outfit of false-works and other appliances for its erection, designed especially for this College.

THE PLANNING AND CONSTRUCTION OF ENGINEERING WORKS.—This is treated in a course of lectures following the study of Applied and Experimental Mechanics. The topics which receive special attention are given in the list of subjects under the heading *Constructions*, on p. 95.

Great stress is laid on the application of correct principles and formulae; on the careful inspection, manipulation and preservation of materials, and on the economic features of various designs and the modes of executing them.

A large collection of lantern slides has been provided for illustrating this course. Among the more important photographic studies are a large number of views in detail of the East River Suspension Bridge at different stages of its progress.

PRACTICAL PHYSICS.—In view of the great importance of the problems in terrestrial magnetism in Geodetic surveys, and also in view of the present and increasing demands upon engineers, arising from the application of electricity as a means of illumination and of transmitting energy, provision has been made for the suitable instruction of the student in these subjects, and all candidates for the degree are required to attain a high standard in them.

GEODESY.—The study of *Engineering Field Work* is provided for in the different subdivisions of the course in Geodesy. The structure, adjustment and use of each instrument is made the subject of special attention, and no student is allowed to participate in any extended field operation until he has acquired a certain dexterity in handling the instruments used therein. The instruction in field work, beginning with the measurement of lines and angles, extends through different kinds of surveys in the order of their complexity, and ends with problems in Higher Geodesy.

A special feature of the course is the stress laid on the collection and verification of field notes by each student, and on their proper use in the preparation of different kinds of plans, maps and charts of surveys. No error is allowed, in field work or in platting, which is not within the limits observed in current practice.

Under this head is given special instruction in *Hypsometry;* the subject being presented by means of lectures and numerous demonstrations in the lecture room and the field.

A very full collection of instruments has been provided for the course in Geodesy. It represents the work of twelve different firms of high repute, great care having been used to avoid the duplication of instruments of the same maker.

The collection consists of a twelve-inch Geodesic Transit, a large Plane-Table, with telescopic Alidade and a Telemeter; Engineers', Mining and Solar Transits, Wye and "Dumpy" Levels; Surveyors' Compasses, Mercurial and Aneroid Barometers; Sextants, Heliotropes, various forms of Linear Measures, and a large assortment of reconnoitering instruments.

PRACTICAL ASTRONOMY.—This is taught in connection with the course in Geodesy, and the students become familiar with the most approved methods of determining latitude and longitude, and the true meridian, as well as with astronomical operations in general.

TOPOGRAPHICAL DRAWING.—The object of this course is to make the student expert in the execution, in pen work and colors, of finished plans and maps of various kinds of surveys. Except in the necessary preliminary drill, the drawings invariably represent actual surveys made by the different classes. A rigid adherence to the field notes of each survey, and a high degree of finish is required in the execution of these drawings.

GRAPHICS.—The instruction in Graphics includes the following branches: *Structure Drawing* (52 hours). A drawing of plan, elevation, end view, sections and details of some railroad bridge, or other structure of approved modern type, to scale from measurements.

Machine Construction and Drawing (56 hours). A course of lectures, recitations and practical exercises on the kinematics of machinery, with graphical representation of mechanical movements; theory of link and valve motion; screw propulsion; gearing, including the theory and use of Willis and Robinson's odontographs; working and finished drawings of machinery, etc. Text-book: Warren's Machine Construction and Drawing.

Stereotomy (50 hours). A course on the application of Descriptive Geometry to stone-cutting, practically applied by the student in cutting a voussoir of plaster to given shape by means of templets, patterns, etc., derived from his own drawings. Text-book: Warren's Stone-Cutting.

Reference is made, during the course in Graphics, to the following authors: Auchincloss and Forney on Link and Valve Motion; Burgh and Bourne, on Screw Propellers; Reuleaux and Kempe on Kinematics and Linkages.

THESIS.—Every candidate for the Degree of Civil Engineer is required to prepare and submit to the approval of

the Professor of Civil Engineering, a design for, or a review of, some special machine, structure, or process, as a graduating Thesis.

SYNOPSIS OF COURSE.

FRESHMAN YEAR.

First Term.

MATHEMATICS, ENGLISH, MODERN LANGUAGES, AND INDUSTRIAL DRAWING as in the course in General Science. GEODESY: *The Measurement of Lines;* with common chains and tapes; with city surveyor's chains, tapes and rods; with Geodesic Secondary Base-Line Apparatus; chain surveys and computation of areas. Theory and practice; [18]. *The Measurement of Angles;* with different kinds of compasses; chain and compass surveying, including the simpler methods of determining the True Meridian and Magnetic Declination. Theory and practice; [12.]

Second Term.

MATHEMATICS, ENGLISH, MODERN LANGUAGES, PLANE PROBLEMS, PROJECTION DRAWING and DESCRIPTIVE GEOMETRY, as in the course in General Science.

Third Term.

MATHEMATICS, ENGLISH, MODERN LANGUAGES AND MINERALOGY, as in the course in General Science. TOPOGRAPHICAL DRAWING: Drawings representing the conventional symbols separately and in combination; Lettering; [35].

SOPHOMORE YEAR.

First Term.

MATHEMATICS, DESCRIPTIVE GEOMETRY, CHEMISTRY, MINERALOGY, ENGLISH, MODERN LANGUAGES, as in the course in General Science. GEODESY: Chain and compass survey of a farming estate; [12].

Second Term.

MATHEMATICS, CHEMISTRY, ENGLISH, MODERN LANGUAGES, SHADES, SHADOWS AND PERSPECTIVE, as in the course in

General Science. STEREOTOMY: Structure Drawing; [20]. GEODESY: Problems in the partition of lands; surveys of public lands; structure and adjustments of engineers' field instruments; [15]. TOPOGRAPHICAL DRAWING: Finished map of the farm survey; [35].

Third Term.

MATHEMATICS, CHEMISTRY, ENGLISH, MODERN LANGUAGES, as in the course in General Science. GEODESY: The measurement of angles with Transits and Theodolites; the computation of lines and angles from the field notes of Triangulations; Levelling for Bench Marks, Profiles and Cross Sections; Topographical surveying. Theory and Practice; [28]. TOPOGRAPHICAL DRAWING: Contour Maps; Drawings of Profiles and Cross Sections; [16]. STEREOTOMY: Structure Drawing; [26].

JUNIOR YEAR.

First Term.

MATHEMATICS, PHYSICS AND ENGLISH, LOGIC OR PSYCHOLOGY, as in the course in General Science. GEODESY: Measurement of heights with Barometer and Thermometer; Hydrography; Surveying with the Stadia and Gradienter; Solar Compass; Town, Plane-Table and Mine Surveying. Theory and Practice; [60].

Second and Third Terms.

PHYSICS, ENGLISH, LOGIC OR PSYCHOLOGY, as in the course in General Science. STEREOTOMY: Machine Construction and Drawing; [28]: MECHANICS: Analytical Mechanics of Solids and Fluids; [76]. TOPOGRAPHICAL DRAWING: Hydrographic Charts; Town Maps; Plans and Profiles of Mines; Colored Topography; Maps of Landscape Surveys; [72].

SENIOR YEAR.

First Term.

GENERAL ASTRONOMY AND ENGLISH, as in the course in General Science. APPLIED MECHANICS: Elasticity and Strength of Materials; Theory of Stresses in Roofs and Bridges; [90]. GEODESY: Preliminary and Location Surveys of Routes; Staking out for Construction. Theory and Practice; [30]. STERE-

OTOMY: Stone Cutting. Theory and Plates; [25]. PRACTICAL PHYSICS: Advanced study of Terrestrial Magnetism and Electro-dynamics; [15]. PRACTICAL ASTRONOMY, as in Elective course of Academic Department; [15].

Second and Third Terms.

GENERAL ASTRONOMY AND ENGLISH, as in the course in General Science. APPLIED MECHANICS: Stability of Walls and Arches; Practical Hydraulics; [49]. MACHINES: General Theory; Hydraulic Motors; Theory of Steam and Air Engines; [60]. CONSTRUCTIONS: Materials of Structures; Dressing and Preservation of Materials; Foundations; Details of Roofs and Bridges; Construction of Roads, Railroads, Canals and Tunnels; Water Supply and Drainage; Heating and Ventilation; [80]. TOPOGRAPHICAL DRAWING: Preliminary and Final Drawings of Routes; [25]. GEODESY: Higher Geodesy; [15]. PRACTICAL ASTRONOMY, as in Elective course of Academic Department; [15]. PRACTICAL PHYSICS: Advanced study of Terrestrial Magnetism and Electro-dynamics; [15].

NOTE.—It will be noticed that the above list of studies does not provide for regular instruction in the Modern Languages after the Sophomore year. It is, therefore, necessary to explain that a partial equivalent for such instruction has been provided by the use of French and German books of reference in some of the technical courses of the Junior and Senior years.

EXAMINATIONS, STANDING AND GRADUATION.

EXAMINATIONS.

Regular Examinations ordinarily take place at the end of a term; each class being examined in the studies of the term. Occasionally, when a course of study is finished before the close of a term the examination takes place when that study is completed; but such examinations are not allowed to interfere with the regular exercises in other studies.

Examinations are for the most part conducted in writing, but in certain subjects are wholly or partly oral. Private examinations are not allowed except in extreme cases, and by special permission of the Faculty. Absence from an examination, except for reasons of absolute necessity, will be regarded as a serious delinquency, and a subsequent examination will not be granted except by a vote of the Faculty.

Regulations concerning the removal of conditions.

The minimum grade for passing examinations is sixty in every department, the maximum grade being one hundred.

A student whose grade is below fifty in more than two departments shall be dropped from his class.

Other students who have been conditioned, or who, from any cause, have not passed the examinations in the studies of any department, will meet in the old Chapel, on the second day of the following term, at 10 A. M., prepared for an immediate examination in those studies.

Those who then fail may, by permission of the Faculty, have another examination, not later than the end of the first month of the term. Of the students who are still found deficient, only those who have shown great industry during the term in which the re-examinations were held, and who, in

the opinion of the Faculty, are able to keep up with their respective classes, may be allowed to continue with the same, until the close of the college year.

All conditions standing against a student at the end of the college year must be removed within a week after the opening of the next term. Failing to remove such conditions, the student will be required at once to join the next lower class.

STANDING.

The results of the term examinations are combined with those of the recitations to decide the relative standing or grade of the student during the term. In computing grades, each study, elective or required, is estimated relatively to the others according to the number of hours which it occupies in the weekly schedule of lectures and recitations. The conduct of the student and his attendance also affect his standing. The maximum grade in each department is one hundred ; the minimum, or passing grade, is sixty. A student whose grade, as determined by the combination of his examination and recitation marks, falls below sixty, is conditioned, and in order to continue with his class must be re-examined. A report of the standing of each student is made to his parent or guardian by the Registrar of the College at the close of the first term and at the end of the year. The last report gives the student's standing for the year.

The final grade of a student is calculated from all the grades received by the student during his College course.

GRADUATION.

Students who have fulfilled the requirements of the Undergraduate Courses, passing satisfactory examinations in all their studies and presenting an acceptable graduating Thesis, are ordinarily recommended by the Faculty for the Degree attached to the course they have pursued, and if the recommendation is approved by the Trustees they receive diplomas signed by the President and the Clerk of the Board of Trustees.

The graduating Thesis will be publicly read and defended by the student during Commencement week.

GRADUATE COURSES IN THE ACADEMIC AND SCIENTIFIC DEPARTMENTS.

Provision has been made for courses of instruction open to resident Graduates of this and other Colleges, under the following regulations:

Every instructor in the College shall be at liberty, with the leave of the Faculty, to give instruction to graduates. He shall meet with his class for at least one hour a week, and not more than three hours, during the Academic year, and shall require the members of his class to undergo rigid examinations on the course pursued.

Each graduate student attending instruction regularly, and passing the examinations, is entitled to a certificate stating what he has done, signed by the President in behalf of the College.

Each graduate student shall pay twenty-five dollars for every course of instruction that he enters requiring an hour per week (provided no student shall pay more than an undergraduate), and shall defray whatever expense may be incurred by the use of instruments and materials employed by him. This charge may be remitted in whole or part where the circumstances of the student require it. No fees will be required of graduates for any of the undergraduate courses of lectures or instruction which they may wish to take.

Arrangement for the graduate courses should be made by application to the individual instructors.

Graduate courses in the following subjects are announced for the present year: Contemporary Philosophy, Plato and his Philosophy, German Philosophy—Kant, Latin, Sanskrit, Physics, Higher Mathematics, Theoretical Astronomy, Biology. The above courses are conducted by advanced lectures or instruction.

Opportunity is offered to graduates for work in the following subjects in connection with the regular undergraduate courses: Anglo-Saxon, English Literature, Psychology, History of Philosophy, Geology, Mineralogy, Biology, Physics, Practical Astronomy, Analytical and Applied Chemistry, Assaying, Topography.

Contemporary Philosophy.

This is a course of discussions in Contemporary Philosophy, conducted by the President, in which he treats of the speculative questions of the present day, such as the Criteria of different kinds of Truth (embracing First Truths and Induction), Agnosticism, Materialism, Causation, Final Cause, Development, Evolution in Ethics, Criticisms of Kant, Herbert Spencer, Huxley and others. After every two lectures there is a discussion by the class. The President also holds a series of evening library meetings during the winter, in which Philosophical and Psychological papers are presented, followed by a free discussion of the subjects treated of. These meetings are open to the President's classes in the College as well as to graduates.

Plato and his Philosophy.

This course, conducted by Professor Orris, is on the writings and philosophy of Plato, as follows: Plato's Republic, alternating with his Theatetus; Analysis of his Higher Dialogues; Lectures and Dictations on his Philosophy and Teachings; Instruction in the Language.

German Philosophy—Kant.

The graduate instruction in Kant is confined to selected readings from the Critiques of the Pure and Practical Reason, in the original, accompanied by such discussions and expositions as best illustrate the meaning of the author and the terminology of German philosophy. These readings are conducted by Professor Sloane.

Latin.

Professor Packard reads with a graduate class, selections from the following Latin works: Cicero's philosophical writings, Seneca's Moral Epistles, Tertullian and Augustine.

Sanskrit.

This course, conducted by Professor Winans, includes the Literature of the Language and its bearing upon Philology and Comparative Grammar. Special attention is paid to the latter. The various phenomena of the language, its roots, forms, inflections, are considered in detail in their relations to those of other Aryan tongues. The following is an outline of the successive stages of the course : Essentials of Sanskrit Grammar, Phonology and Inflections (Stenzler's Elementarbuch der Sanskrit-Sprache,—which furnishes also a suitable Chrestomathy); Reading of several books of the Nalopâkhânami, an episode in the great Hindoo epic, the Mahâbhârata,—with review of the Grammar, (Whitney's); next, selections from the Hitopadeça. An average of two exercises a week is expected. Members of the Junior or Senior class may pursue this course as an optional study.

Physics.

The courses are similar to those of the Senior year, but more extended and exhaustive in their character. Professor Brackett and Mr. Magie conduct this course.

Higher Mathematics.

There are at present three graduate courses in Mathematics, conducted by Dr. Halsted, as follows :—One in the Advanced Calculus with Definite Integrals and Modern Applications of the Calculus, a second in Determinants and Quaternions, and a third on the Theory of Equations and Modern Algebras.

Astronomy.

This course is conducted by Professor Young and Mr. McNeill. It consists of :

(a). Practical Astronomy—the same as in the Senior elective previously described in the course of study of the Academic Department. This is open to such graduates as did not take it in their College course.

(b) Theoretical Astronomy—one hour weekly through the year. This course consists in the reading of Watson's Theoretical Astronomy, supplemented by selections from Oppolzer and

Klinkerfues, and includes the calculation of the orbit of a planet or comet from actual observation.

Biology.

A thorough advanced course in Biology has been established in connection with the Geological, Zoölogical, Botanical and Chemical departments, the objects in view being (1) to foster a spirit of original research, (2) to qualify advanced students to become teachers. This course is open to College graduates, also to students presenting diplomas from recognized medical schools. After the student has pursued this course in full and passed at the close a thorough examination in the various subjects, he is entitled to the degree of Master of Science. This course is open also to students who are not qualified to become candidates for the degree, but who possess sufficient elementary knowledge to profit by the instruction.

The following subjects of instruction are arranged for:

Professor Macloskie—I. Anatomy and Embryology of the Higher Invertebrates. II. Vegetable Morphology and Histology.

Professor Cornwall—Physiological Chemistry.

Mr. W. E. D. Scott—Ornithology: The Anatomy, Distribution and Migration of Birds; Sexual, Seasonal and Climatic Variations. (Not to be given this year.)

Professor Libbey—I. The Microscope and Microscopic Technology. II. Deep Sea Sounding and Dredging; recent methods and results.

Professor Osborn—I. Comparative Anatomy of the Vertebrates. II. Elements of Embryology.

Professor Scott—I. Vertebrate and Invertebrate Palæontology. II. Advanced Embryology.

These courses are of a comprehensive and elastic character, and, according to the requirements and wishes of different students, include much laboratory work under the supervision of the instructors. At the close of the first term, the student may select a department of special study for his Thesis, which must present the results of original work.

DOCTOR'S AND MASTER'S DEGREES.

The Degrees of Doctor of Divinity (D.D.) and Doctor of Laws (LL.D.) are conferred solely *honoris causa;* the other degrees below named, excepting only the degree of A. B., are also sometimes conferred in the same manner.

Master of Arts.

The degree of A. M. may be conferred two years after graduation, upon any Bachelor of Arts who shall have devoted one of the years exclusively to study in the College under the care of the Faculty, passing rigid examinations upon the studies pursued; or, who shall have taken at least one graduate course each year for the two years and passed satisfactory examinations upon his work.

The same degree may be applied for, three years after graduation, by any Bachelor of Arts who is pursuing one of the learned professions, (including teaching), or who, on or before May 1st of the year in which he seeks the degree, shall have submitted to a committee appointed by the Board of Trustees, a satisfactory paper, literary, philosophical or scientific.

Master of Science.

Bachelors of Science who shall have devoted one year in this College exclusively to the study of such of the following subjects as the Faculty shall prescribe, and who shall have shown satisfactory proficiency therein by Dissertations and Examinations, may apply for the degree of Master of Science (M. S.) The prescribed subjects are :—*Biology, Mathematics, Rational and Applied Mechanics, Practical Astronomy, Applied Chemistry, Qualitative Analysis, Quantitative Analysis, Physics, Mineralogy, Drawing, Modern Languages.*

Any Bachelor of Arts, who after examination may be found to be prepared to pursue a graduate course in Science, may be-

come a candidate for the degree of Master of Science on the same conditions as a Bachelor of Science.

Special Regulations for the Graduate Course in Biology.

1. The Courses leading to a Degree are open only to graduates of this and other colleges ; or to students presenting diplomas from recognized medical schools. Other students may attend the Lectures and Laboratory work, but will not be eligible for a Degree.

2. At the close of the first term, the student may select a department of special study for his Thesis. This Thesis should present the results of original work pursued under the direction of the Instructor. If the student pass all his examinations at the close of the year, and his Thesis be satisfactory to the Board of Instructors, he will be entitled to the degree of Master of Science (M. S.). Attached to the Diploma will be a statement that the Degree has been awarded for proficiency in Biology.

3. The Theses which are accepted as giving title to a Degree, on the recommendation of the Board of Instructors, will be published in the Bulletins or Memoirs of the E. M. Museum.

Doctor of Philosophy.

A Bachelor of Arts who has devoted all his time to a two years graduate course in the College, taken a prescribed course of special reading, passed a rigid examination on subjects studied, and presented a thesis giving evidence of original research and high attainment, may apply for the degree of Doctor of Philosophy.

Doctor of Science.

A Bachelor of Arts or of Science, who has devoted all his time to a two years graduate course of scientific studies in the College, passed rigid examinations on the subjects studied, and presented a thesis containing the results of original research, may apply for the degree of Doctor of Science.

FELLOWSHIPS, PRIZES AND SCHOLARSHIPS.

Besides the degrees and honors conferred in the regular course, annual Fellowships, Prizes and Scholarships are offered as special incentives to study, in the classes or departments with which they are connected.

Only matriculated students who are candidates for a degree are admitted to the competition for Fellowships, Prizes and Scholarships, and none are admitted to such competition who have failed to pass satisfactorily their last preceding examination in any of the departments.

No member of any class is allowed to compete for more than one of the Fellowships or Scholarships offered to that class.

The names of the Fellows, Prizemen and Scholars of each year are included in the Honor List for the year.

FELLOWSHIPS.

Every competitor must have been a member of the College in full standing for at least two Academic years previous to the Fellowship examinations.

Every Fellow obtaining any one of the $600 Fellowships must devote his whole time for one year to study in the department for which the Fellowship is provided, under the direction of the Professors in that department. He must reside in Princeton, and pass two rigid examinations on his work, unless by a vote of the Faculty he be allowed to study at an approved foreign University, in which case he shall from time to time furnish written reports of his work to the Professors in his department. The result of every examination and the reports of work done abroad shall be immediately reported to the Faculty. If resident in Princeton, he shall be allowed to occupy free of cost in one of the College buildings, a room assigned to him by

the College authorities. He shall be regarded, whilst occupying such place, as a resident officer of the College, and he shall, when called on, perform such duties in the department to which he belongs as may be assigned to him by the President at the request of the Professors in that Department.

THE CHANCELLOR GREEN MENTAL SCIENCE FELLOWSHIP.

This Fellowship, originally founded in 1870 upon the annual payment of $600 by the late ex-Chancellor Henry W. Green, was permanently endowed in 1878 by a bequest of $10,000 in his will.

The sum of $600, to be paid quarterly, will be awarded to the member of the Senior Class who may write the best essay on *The nature and extent of a priori principles, with special criticism of the Evolution Theory of Conscience*, (to be given in on, or before, June 1), and who may stand highest at a special examination to be held in June, on the following subjects:

A general knowledge of the Philosophies of Plato, Aristotle, Descartes, Locke, Hume, Kant, and Hamilton. Cicero De Officiis, Chapter *De Contentione Honesti et Utilis*. Theoretical Ethics. Psychology and Metaphysics (McCosh's *Intuitions*, Parts I., II., and III., Book 1). The Syllogism.

THE CLASS OF 1860 EXPERIMENTAL SCIENCE FELLOWSHIP

This Fellowship was founded in 1870 upon the sum of $10,000 subscribed by the Class of 1860. A deficiency of income, resulting from the depreciation of the value of the securities in which the principal was invested, and the lowering of the rate of interest, is paid, by the consent of the donor, from the income of the Magee Professorship of Mining and Engineering, founded by George J. Magee, Esq., of the Class of 1860.

The sum of $600, to be paid quarterly, will be awarded to the member of the Senior Class who may stand highest at a special examination, to be held in June, on the following subjects, viz.: 1. Physical Optics. 2. The Secondary or Mesozoic age of Geology; its distinctive characters, Geological and Palæontological, contrasted with those of the Carboniferous and Tertiary ages. 3. Pottery and Glass; their history, chemistry, manufacture, properties, uses.

THE J. S. K. MATHEMATICAL FELLOWSHIP.

The J. S. K. Fund was established in 1873 upon the sum of $11,000, since increased to $14,000, given by a gentleman in New York, $600 of the income of which is devoted to this Fellowship, and $200 to the Freshman First Honor Prize.

This sum of $600, to be paid quarterly, will be awarded to the member of the Senior Class who shall stand highest at a special examination to be held in June, on the following subjects: *Analytical Geometry; Differential and Integral Calculus.*

THE BOUDINOT FELLOWSHIPS.

These Fellowships are founded upon a bequest of the late Dr. Elias Boudinot, of New Jersey, and yield each the annual sum of $250.

THE HISTORICAL FELLOWSHIP.—The sum of $250, to be paid quarterly, will be awarded to the member of the Senior Class who shall write the best Essay on *The Constitutions of Great Britain and of the United States, compared and contrasted,* and pass the best examination in June next on *The Constitutional History of the United States.* The Essay to be presented on or before June 1.

The Fellow shall, from time to time during the following year, as may be required by the President, give evidence by written papers that he is reading such a course as the President may approve.

THE MODERN LANGUAGE FELLOWSHIP.—The sum of $250, to be paid quarterly, will be awarded to that member of the Senior Class who shall pass the best Examination in June, on the following subjects:

A comprehensive knowledge of both the French and German descriptive Grammars. History and development of either of these languages, and the history of their literature. Reading at sight of any given author of the Classical or Recent Period. An essay of not less than four pages (foolscap) in one of these languages. The examination will be conducted orally and in writing.

The Fellow shall from time to time during the following year, as may be required by the Professor of Modern Languages,

give evidence by written papers that he is reading such a course as the said Professor may approve.

THE W. S. WARD FELLOWSHIP.

Competition for this Fellowship will be open to the Senior Class, in both the academic and scientific departments, and to graduate students. The award will be made according to the merits of the competitors, as determined by an examination to be held next June, on "*Electricity in its application to Mechanical and other Economic Arts.*" The Fellow thus appointed will receive the sum of $600, to be paid quarterly, and will be required to spend one year in continuous study under the direction of the proper Professors of the College, and to visit the mines of Colorado. Before the end of his Fellowship he will be required to prepare a thesis on a subject to be announced.

THE E. M. BIOLOGICAL FELLOWSHIP.

The sum of $600, to be paid quarterly, will be awarded to that student who shall stand highest at a competitive examination on subjects assigned by the Professors of the Biological department.

The competition for this Fellowship will be open to any member of the Senior Class in either the Academic or Scientific department, or to any College graduate who shall have pursued, during the preceding year, the graduate course in Biology at Princeton.

This Fellowship conveys with it the use of a table in the National Seaside Laboratory at Wood's Holl, Mass., together with all the facilities afforded for the collection and study of animal life during the season favorable for such investigations. In the winter months following this laboratory work the Fellow will pursue his studies at Princeton, and will be required to elaborate and submit a thesis embodying the results of his summer researches.

The examination for this Fellowship in 1883 will be held in June upon the following subjects:

(*1*) *The Morphology of the Crustacea.* (*2*) *The Embryology and Anatomy of the Worms.* (*3*) *The Structure of the Algæ.* (*4*) *The Comparative Anatomy of the Fishes.* (*5*) *The Embryology of the Amphibia.* (*6*) *The Histology of the Digestive Tract.*

PRIZES AND SCHOLARSHIPS.

THE LYNDE PRIZES.

Three prizes—one of $130, one of $120, and one of $100—the income of $5,000, contributed by Charles R. Lynde, Esq., will be awarded by a committee appointed by the Faculty, to the three successful competitors in a debate on the Monday evening preceding Commencement. The competition will be between six members of the Senior class—representatives of the Literary Societies—selected by Committees appointed by the Societies respectively from their own members in the Faculty.

THE BAIRD PRIZES.

Through the liberality of Charles O. Baird, Esq., the following prizes, representing the income of $6,000, will be given to those who excel in the Oratorical Exercises of the Senior class, viz.: The Baird Prize of $100 to the best speaker of those who, during the last three years of the College course, have ranked among the first six writers in any two of the three departments of English Literature, Rhetoric and Oratory; a prize for Oratory of $50 to the best speaker exclusive of the Baird Prizeman, of those who, during the same time and in the same departments, have ranked among the first twelve writers; a Prize for Delivery of $30 to the best speaker exclusive of the two just mentioned; also a Prize for Poetry of $50; and two Prizes of $40 and $30 respectively [for the best and the second best written Disputations.

THE CLASS OF 1859 PRIZE.

The interest of $2,000, given by the Class of 1859, will be awarded to the member of the Senior Class who shall write the best essay on *Nathaniel Hawthorne*, and pass the best examination on the *Play of Macbeth*. The essay must be handed in on, or before, June 1, and the examination will be held in June.

N. B.—The subject of the essay for the Class of 1884 will be *The Poetry of Shelley*.

SCIENCE AND RELIGION PRIZE.

A medal of the value of $100 (or its equivalent in money), will be awarded to that member of the Senior Class who shall pass the best examination in the department of the Harmony of Science and Revealed Religion, and write the best essay on *The Philosophical Value of a Divine Revelation.*

THE GEORGE POTTS BIBLE PRIZES.

The yearly interest of $1,000, given in 1867 by Mrs. Sarah A. Brown, expended in the purchase of two copies of Matthew Henry's Commentary on the Bible, will be presented to the two best Biblical scholars of the Senior Class at the end of their College course.

JUNIOR ORATOR MEDALS.

Four gold medals, or books of equal value, will be awarded by a committee appointed by the Board of Trustees, to the four successful competitors in an Oratorical Contest on the evening before Commencement. The competition will be between eight members of the Junior Class—four from the Cliosophic and four from the American Whig Societies—selected by committees appointed by the Societies respectively from their own members in the Faculty.

DICKINSON PRIZE.

The Dickinson Prize, founded by John Dickinson, Esq., of New Jersey, in 1782, consisting of a medal of the value of $60 (or its equivalent in money), will be awarded to that member of the Junior Class who shall write the best dissertation upon the subject of *The Question of a Divine Government, as affected by recent Science.* The dissertation to be presented on or before June 1.

THE WOOD SCHOLARSHIP.

The sum of $150, the income of a legacy of Dr. George B. Wood, will be awarded to the member of the Junior Class who receives the highest grade for the Junior year.

THE STINNECKE SCHOLARSHIP.

The Stinnecke Foundation was established in 1870 by the will of the late Henry A. Stinnecke of the Class of 1860, and was supplemented by a bequest received in 1876 from his aunt, Miss Maria Stinnecke. The income is divided between the Stinnecke Scholarship of $500, and the Maclean Prize of $100. Owing to the suspension of the payment of interest on the securities the Scholarship and Prize have been suspended for several years, but the fund will be reëstablished by July, 1884.

The Stinnecke Scholarship, of the annual value of $500 tenable, during the College course, unless forfeited by neglect of study, "will be given to that person who, having entered the Sophomore Class, shall pass the best examination at the opening of the session in September, 1884, in the Odes of Horace, the Eclogues of Virgil, and the Latin Grammar and Prosody, as well as the Anabasis or Cyropœdia of Xenophon and the Greek Grammar." Students of the College who have been members of the Freshman Class, as well as those entering the Sophomore Class, will be admitted to such examination. The committee of examiners are appointed by the Trustees.

THE CLASS OF 1861 PRIZE.

The interest of $1,200, given by the Class of 1861, will be awarded to that member of the Sophomore Class who shall pass the best examination in June next on those portions of the Mathematical course of the Sophomore year which shall be specially designated by the Professor of Mathematics.

THE FRESHMAN FIRST HONOR PRIZE.

A prize of $200, part of the income of the J. S. K. Fund, to be paid in quarterly installments during the following year, will be awarded to that member of the Freshman Class, who having entered said class at the beginning of the College year shall, at the end of such year, be reported to the Trustees by the Faculty to have attained the highest average grade in Scholarship, provided he pursue his studies in this College, and maintain a good standing during the Sophomore year. No student who has been suspended from College, or who has been put upon his last probation, shall be eligible to this Prize.

THE COLLEGE OF NEW JERSEY.

The College originated by Royal Charter under President Dickinson in 1746. A second more ample charter was granted in 1748. After the War of the Revolution, the charter was confirmed and renewed by the Legislature of New Jersey.

The College embraces a Board of Trustees and Faculty of Instruction, with certain additional officers employed in the administration of affairs. The undergraduate Societies and Alumni Associations, though not strictly parts of the organization of the College, are fostered by it, and coöperate with it.

The Corporation is styled "The Trustees of the College of New Jersey." By its charter it holds and administers the property of the College, appoints the President and Faculty, makes laws for the government of the Institution, and confers the degrees. The Board is a self-perpetuating body, composed of twenty-seven members, with the Governor of the State as President *ex officio*, or in his absence the President of the College.

The Faculty, consisting of the President, the Professors, and tutors, conducts the instruction and discipline of the College.

SOCIETIES.

Literary Societies.

The Cliosophic and American Whig Societies originated early in the history of the College. They are conducted by the undergraduates, but also include in their organization graduates and officers of the College. Both possess halls, containing the rooms for meeting, reading rooms and valuable libraries of over 8,000 volumes each. They both pursue courses of literary exercises, award numerous prizes for orations, essays, and debates, and grant diplomas to their respective graduates.

A generous competition for College honors has always prevailed between them, and they engage annually on the evenings before Commencement in a public debate, and a competition in

oratory, by representatives from the two societies. The details respecting the Lynde Debate and the Junior Orations will be found on pages 108–109.

These Societies are considered a part of the educational appliances of the College, and students are advised to join them.

The Philadelphian Society.

This is a Society composed of undergraduates, united by a covenant of mutual religious aid and sympathy. It was founded in the year 1825, and has always been an active and successful agency in promoting the religious life of the College. Devotional meetings are held on Thursday and Saturday evenings, under its direction, often conducted by members of the Faculty. Murray Hall, the building belonging to the Society, was erected from a bequest left for the purpose by Hamilton Murray of the Class of 1872. It contains, besides the room for worship, a reading room supplied with religious books and periodicals.

The St. Paul's Society.

The St. Paul's Society is an association similar in nature and aim to the Philadelphian, and is intended to be helpful, devotionally and practically, to those students in the College who have been accustomed to the worship of the Protestant Episcopal Church. It has weekly meetings, conducted by the students, and it has commonly had a course of sermons, delivered in Trinity Church, under its auspices.

BUILDINGS.

The buildings centre around Nassau Hall, which dates back nearly to the foundation of the College, having been erected in 1756. One wing of this building is still occupied by students. The central and eastern portions contain the Geological Museums and Lecture room. The School of Science building, the Chancellor Green Library, Murray Hall and several of the dormitories have been erected within the last decade, and the Marquand Chapel, the gift of H. G. Marquand, Esq. of New York, has been built during the current year. The Academic lectures and recitations are conducted mainly in Dickinson Hall, while

the scientific lecture-rooms and laboratories are principally in the building of the John C. Green School of Science. A majority of the students reside in the five dormitories upon the Campus.

THE CHANCELLOR GREEN LIBRARY.

The College Library began with the College itself, in a bequest of books by Governor Belcher. The first catalogue, printed in 1760, shows that it then consisted of more than twelve hundred volumes. It suffered much during the revolutionary war, and it was burnt, with Nassau Hall, in 1802. The gifts of many liberal friends soon reëstablished it, and it slowly advanced to 9,313 volumes in 1854. The want of resources for its increase kept it small, till the Elizabeth fund of $50,000 was created by Mr. John C. Green in 1868. When the present library building was erected by him, in 1872-73, the collection contained about 25,000 volumes. Since that time its progress has been rapid, and it now consists of nearly 60,000. The liberality of those who represent his estate has permitted an average yearly increase of 5,000.

Perhaps the library is strongest in the departments of Mathematical, Physical, and Natural and Mental Science. But it is rich, also, in Philology and Literature. Few libraries surpass it, in respect to works on the origin and early history of our language, and our race. Generous efforts have been made to enrich it with the serial issues of scientific associations abroad. A collection of books on fine art, soon to be largely increased, may be seen in a separate room. Each Professor nominates books for purchase in his own department.

The arrangement of books upon the shelves is by topics, and a pamphlet elucidating this arrangement is kept on every table and given on application to every student. A subject catalogue of 700 pages will be completed by the beginning of another Academic year. For the present, students are allowed free access to the alcoves. A large collection of books of reference is kept constantly on the shelves, consisting of twenty encyclopedias, seventy periodicals, and the dictionaries of twenty languages.

At the west end of the building is a reading room for the Faculty, furnished with more than fifty periodicals of high character. Students are admitted on application at the desk, and they may borrow the past issues of each periodical when a new number has reached the table.

Library Hours.

The Library is open every secular day: for the delivery and exchange of books from 12 to 1 P. M., and from 2 to 4 P. M.; for the consultation of books from 10 A. M. to 1 P. M., and from 3 to 5 P. M. The use of books is allowed, under the rules, to all the students. Resident graduates have the same privileges in the Library as undergraduates.

MUSEUMS.

The E. M. Museum of Geology and Archæology.

This Museum, occupying the central and eastern wings of Nassau Hall, contains collections which are distributed in three general departments of Geology (including Mineralogy), Palæontology and Archæology. Their arrangement is especially adapted to the purposes of comparative study.

In the GEOLOGICAL DEPARTMENT a special room contains a unique collection of over 5,000 specimens of erratic boulders and drift materials from Switzerland. There is also a special room devoted to the typical rocks and fossils of the State of New Jersey. A collection of the typical rocks of the State of New York represents the series as described in the Geological Survey of that State.

There is in this department a large collection of minerals, containing about 2,600 specimens, left the College by the late Archibald MacMartin, of New York. The perfection of the specimens, and the number of localities represented in each family, make this collection one of special value.

The Collections of the PALÆONTOLOGICAL DEPARTMENT fill two large halls, with extensive galleries. The central hall,

or Synoptic Room, is especially designed and arranged with reference to the general course of Geology. There are mounted casts of the gigantic reptiles and mammals of the secondary, tertiary and quaternary ages. Around these the characteristic fossils of each of the great ages of life form as many groups, which follow each other in chronological order, while within each group the fossils are arranged according to their zoölogical affinities. The typical fossils selected agree, as far as possible, with those mentioned in Dana's Geology, as characteristic of different geological periods.

The upper or eastern hall contains the main collections for advanced students; on the platform are the skeletons of a Mastodon, an Irish Elk, a Cave Bear, and some of the extinct birds of New Zealand; also the skulls of Uintatherium and Loxolophodon. Surrounding the room is a very perfect collection of vertebrate and invertebrate fossils from Europe and America, illustrating the vertebrate and invertebrate forms of all the geological epochs. Included in this series are the fine Eocene and Miocene fossils, procured in the West by the various Princeton collecting parties. There is also a series of fossil insects and plants from Colorado. Altogether the number of fossils, not counting duplicates, is 9,000.

ARCHÆOLOGICAL DEPARTMENT.—Here are relics of the Swiss Lake Dwellings, and numerous implements of stone and bronze from Denmark; also several hundred flint implements from most of the classical localities of the palæolithic and neolithic ages of France.

America is represented in the pottery and human remains of the mound builders, by several hundred specimens of Mexican and Peruvian Pottery, and by a number of recent Indian relics. The interesting ethnological collection of objects, chiefly from Alaska and New Mexico, which Dr. Sheldon Jackson presented to the Theological Seminary of Princeton, has been transferred to this Museum by the Trustees of that institution, with the consent of the donor. The Archæological Gallery contains also a series of models of the Cliff ruins of the Southwest, executed under the direction of Dr. Hayden.

Below the Eastern Hall are the lecture and working rooms.

Zoological Museum.

The collections forming this Museum have been chiefly made from the endowment fund of the John C. Green School of Science. There have also been many smaller donations to the Museum from time to time. The collections are placed in the large upper hall of the School of Science building, and are at present especially rich in osteological specimens. On the same floor are the Laboratory and working rooms of the Curator of the Museum. The collections of vertebrates include a large number of mounted and disarticulated skeletons of the mammals, reptiles, birds and fishes; also a carefully mounted stuffed series of the birds of New Jersey, and of other districts of North America, besides alcoholic specimens. A feature of the Ornithological collection is the very large number of unmounted bird skins, arranged for purposes of comparative study of the plumage, feet and beak. Among the invertebrates are a series of Ascidians, Echinoderms, Mollusks, Crustaceans, Insects, Worms, Corals, Sponges, and microscopic preparations of small forms. Every reasonable opportunity for study is offered to students in this Museum, in the way of access to the cases, and use of the adjoining Laboratory.

Herbarium and Botanical Laboratory.

This is on the second floor of the School of Science building, and is arranged as a Museum for the botanical collections, also as a working laboratory for students. The plants are classified according to Bentham and Hooker's *Genera Plantarum*, including specimens from the different sections of the United States, and from Europe and Australia. There are extra specimens for laboratory use, and dissecting and compound microscopes, dissecting instruments, section cutters, models, diagrams, and books of reference.

LABORATORIES AND APPARATUS.

Physical Laboratory and Apparatus.

The Physical Laboratory is fitted up with tables and other arrangements to accommodate about twenty students at once.

Besides the appliances usually employed in lecture demonstrations, the cabinet of apparatus contains all the instruments of precision required in the experimental courses.

The following deserve special mention :—A fine balance by Becker, sensitive to one milligramme under a load of twenty kilogrammes. A Cathetometer, with scale of one metre. A dividing engine and comparator, (Rogers). A cylinder Chronograph, for all time-observations in the laboratory. [The time is communicated electrically from the astronomical observatory.] A diapason Chronograph (Koenig), for minute intervals of time. Pendulum apparatus, of both Borda's and Kater's forms. A Spectrometer (Fauth), with 18 inch circle reading by microscopes to single seconds. Ditto, (Grunow), with smaller circle, reading to 10″. Ditto, (Stackpole), reading to 30″. A number of diffraction gratings (Rutherfurd), ruled upon glass and speculum metal ; to be used with these spectrometers. A large spectroscope, with dispersive power of twelve prisms (Browning). Sir William Thomson's absolute electrometer and quadrant electrometer (White). Lippmann's capillary electrometer. A set of accurate resistance coils, and standard condenser (Elliot). A large number of galvanometers suited to the different requirements of the laboratory. Sets of standard thermometers ; apparatus for calorimetric inquiries ; photometers, etc.

Chemical Laboratories.

The laboratory and cabinets of the department of General Chemistry are fully equipped for the illustration of the courses in the two branches of General and Applied Chemistry.

There is a laboratory for Qualitative Analysis, with desks for forty-seven students, and another for Quantitative Analysis, with desks for forty students. Attached to the laboratories are the Assistants' rooms, acid room, weighing room and store room, and the laboratories are provided with all of the appliances for a full course in chemical analysis. There is also an Assay Laboratory, with crucible and muffle furnaces. These laboratories are all in the School of Science building, and each student has a desk for his own use, with cupboards and drawers

in which he can lock up such apparatus as is supplied to him individually.

Mineralogical Laboratory and Collections of the School of Science.

The laboratory contains desks for twenty-six students, with room for fourteen more desks. Each desk is fitted with gas connections for blowpipe work in Determinative Mineralogy, and contains a locked drawer for the student's apparatus.

There are three cabinets of minerals. The principal one contains over five thousand specimens, embracing nearly every mineral species. Two smaller cabinets, one with labeled and the other with unlabeled minerals, are provided for practice with the classes, and to these two cabinets the students have free access.

There is also a collection of 240 specimens of typical rocks; together with a large number of Fuess's rock sections; as well as sections from other sources, for the study of Lithology.

The laboratory is provided also with section cutters, grinding lathes, and other appliances for the optical study of minerals and rocks; including a complete Groth's polarizing apparatus, with goniometer; a large Babinet goniometer; Norremberg's polarizing apparatus; Rosenbusch's microscope, and minor apparatus.

A fine collection of zeolites from Colorado was presented to the mineralogical cabinet by Mr. W. H. Underwood, this year.

Histological Laboratory.

This laboratory is in the building adjoining the School of Science. It is fitted to accommodate ten students at a time, each of whom is provided with the requisite instruments, reagents and staining fluids for the study of the various tissues. The microscopes have been selected with a view to convenience in practical work. A private collection of upwards of 600 slides, illustrating the general subject of Histology, is also placed at the disposal of the student, as well as books of reference and American and foreign publications. A fee of $5 is charged to cover material used and general expenses. The laboratory is open at all hours to its regular students.

Morphological Laboratory.

This laboratory adjoins the School of Science building. It is designed for the practical study of Vertebrate Anatomy, with abundant facilities for dissection and experimental work. Besides the ordinary apparatus, there is a chick incubator for Embryological study, and an aquarium containing live Amphibia belonging to the different groups. For comparative study there belongs to the laboratory a collection of disarticulated skeletons of the typical vertebrates, and a number of alcoholic specimens. The laboratory library contains the principal works of reference. There is a fee of $3 for ordinary courses in dissection. The laboratory is open during the day and evening.

ASTRONOMICAL OBSERVATORIES.

The Halsted Observatory.

This is appropriated to scientific work, chiefly in the department of Astronomical Physics. The building is of stone, with a revolving dome, 39 feet in diameter, of iron. The power for moving the dome and its sliding shutter is furnished by a gas engine. The principal instrument is the great equatorial of 23 inches aperture and 30 feet focal length, which has been erected during the past year. It was made by the Clarks, of Cambridge, and is provided with all the usual micrometers and other accessories, and especially with a star spectroscope of the largest size, by Hilger, of London. The building contains also a clock and a chronograph. An Edison dynamo-electric machine supplies the electric currents required in spectroscopic investigations.

The Observatory of Instruction.

This establishment is devoted entirely to the use of students, and is fully equipped for its purpose. It possesses an equatorial (by Clark) of 9½ inches aperture, with an unusual complement of spectroscopic and other accessories. It has also a 9-inch reflector; a meridian circle with telescope 4 inches in diameter; two transit instruments with 3-inch telescopes, both

of them arranged for use as zenith-telescopes; a 3-inch prime vertical instrument; a chronograph; two standard clocks, and two chronometers. There are also a number of sextants, and all the other subsidiary apparatus required for carrying out the work detailed on page 22.

An apparatus for photographing the Transit of Venus, essentially similar to that used by the Government parties, was erected at this Observatory.

GYMNASIUM.

The Gymnasium was built in 1869 by Mr. Henry G. Marquand and Mr. Robert Bonner. It is thoroughly equipped with all the apparatus necessary for a complete physical training. It has hot and cold shower and plunge baths, dressing rooms, bowling alleys, and, besides the main hall, a room for base ball practice. There is also a gallery for visitors. The Gymnasium is open from 7 to 8 A. M., 12 M. to 1.30 P. M., 5 to 6.30 P. M., on every day except Saturday, when it is open from 12 M. to 6.30 P. M. Classes in the use of Indian Clubs and Calisthenics are held every day during the noon and afternoon hours. These exercises are adapted to all grades of strength, and are such as to maintain and improve in health all who take part in them, health being the primary and strength the secondary object of exercise. Special exercise on the various apparatus is under the personal supervision of the Superintendent, who is also at the command of any student for advice in regard to physical development and the laws of health. During the winter term there is an indoor athletic meeting for prizes; in the spring term a gymnastic contest also for prizes, and at Commencement a gymnastic exhibition.

GENERAL COLLEGE ORDERS.

TERMS AND VACATIONS.

The College year is divided into three terms or sessions.

The *first* term of the *present* College year (1882–83) began on Wednesday, the 13th of September, 1882, and ends on Tuesday the 19th day of December. The *second* term begins on Wednesday, the 3d of January, 1883, and ends on Wednesday, the 11th of April. The *third* term begins on Wednesday, the 18th of April, and ends on Wednesday, the 20th of June, 1883 —the day of the Annual Commencement.

Students are required to return to College on the first day of each term, and absences from any College exercise at the beginning of a term affect a student's standing in the same manner as absences at any subsequent period.

Students are not allowed to leave College during term-time without express permission obtained from the Faculty or officer of the Class to which they belong.

COMMENCEMENT ANNIVERSARIES.

THE ANNUAL COMMENCEMENT takes place on the Wednesday preceding the last Wednesday in June.

THE BACCALAUREATE SERMON of the President to the graduating Class is delivered before the College on the Sunday preceding Commencement.

On the subsequent days preceding Commencement will be held the Class Day Exercises of the graduating Class, the Lynde Prize Debate, the Junior Oratorical Contest, the Reading of Theses by the graduating Class of the School of Science, the Annual Meetings of the Literary Societies, and the Annual Meeting of the Alumni Association of Nassau Hall.

PUBLIC WORSHIP AND RELIGIOUS INSTRUCTION.

Prayers are offered in the Marquand Chapel every week-day morning. In these services, members of the Faculty officiate in turn.

Divine service, under the superintendence of the President, is held in the Marquand Chapel on Sunday, at 11 o'clock A. M., when a sermon is preached once a fortnight by Professor Murray, and on the other Sabbaths by the clerical members of the Faculty.

Religious services are also held in the chapel every Sabbath afternoon at 5 o'clock.

Permission to attend divine service elsewhere than in the College, on special occasions, is granted on application to the President. For permission to attend regularly one of the Churches of the town on Sabbath morning, a written request from the parent or guardian of the applicant must be presented to the President.

Religious Instruction.

Biblical Instruction is given during the week, as follows:

To the Senior Class by the President: I. The Development of Doctrine in the Pentateuch, especially Genesis. II. The Distinct Enunciation of Doctrine in Romans, Ch. i.—viii.

To the Junior Class by Professor Murray: The Prophets and the Book of Acts.

To the Sophomore Academic Class by Professor Orris: John's Gospel in the Greek.

To the Freshman Academic Class by Professor Hunt: General Introduction to the study of the Scriptures. The Poetical Books of the Old Testament and Parables of our Lord.

To the Freshman and Sophomore Classes in the School of Science by Professor Macloskie: Typology of the Old Testament and the Life of Christ.

ATTENDANCE UPON COLLEGE EXERCISES.

The several Classes ordinarily attend three Recitations or Lectures every day, except Saturday, when there is but one College exercise.

Every undergraduate student is required to attend all College exercises in the Chapel, to be present during the lectures and recitations of his Class, and is to avail himself of the privileges of the Library and Gymnasium upon the conditions and at the hour appointed.

Each student is allowed a certain limited number of absences from chapel and recitations during each term. When a student's absences exceed this gratuity they affect his standing, and when they exceed thirty in the first and second terms, and twenty in the third term, the student will be required to return home.

PECUNIARY AID.

A limited number of students of good moral character, intellectual ability and promise, needing assistance, are aided in their efforts to obtain a liberal education, by means of endowed scholarships, which discharge the amount of their tuition fees.

Application for admission to these Scholarships, as they become vacant, should be made to Professor Duffield.

The College also possesses a fund given for the purpose of aiding candidates for the ministry of the Presbyterian Church, from which they can receive at least thirty dollars a year each.

Endowed Scholarships.

Friends of the College, and some Churches have endowed a number of Scholarships, which are designed to extend the privileges of the Institution to deserving young men needing assistance. Hitherto the sum of $1,000 has been sufficient to found such a Scholarship, but owing to the diminution of the rate of interest, a principal sum of $1,500, or the annual payment of $75 as interest until the principal is paid, is now requisite for an endowment.

Those who are placed upon these Scholarships must be fully prepared for admission to College, and when admitted must conform to its laws and regulations.

The applications for the benefit of these Scholarships, by young men of promise, far exceed the number endowed, and the friends of the College and of education may aid deserving

young men, and at the same time increase the current income of the College by adding to this foundation.

LIST OF ENDOWED SCHOLARSHIPS.

1. Matthew Newkirk	$1,000	33. 1st Pres. Ch. of Bridgeton	$1,000
2. William Rankin	1,000	34. Skidmore	1,000
3. A. Cresswell	1,000	35. L. S. Spencer	1,000
4 Isaac N. Rankin	1,000	36. J. D. Lalor	1,000
5-7. Roswell Colt	3,000	37. Frederick Marquand	1,000
8. Musgrave	1,000	38. 1st Pres. Ch., Trenton	1,000
9. J. Cogswell	1,000	39. S. and D. Cameron	1,000
10. Henry W. Green	1,000	40. 2d Pres. Ch., Elizabeth	1,000
11-15. James Lenox	5,000	41. Chas. S. Bayliss	1,000
16. Hugh L. Hodge	1,000	42. Eliza Musgrave Giger	1,000
17. A. B Bayliss	1,000	43. James Blair	1,000
18. Henry J. Van Dyke	1,000	44. Samuel H. Pennington	1,000
19. Dudley S. Gregory	1,000	45. Aaron Fenton	1,000
20. Pres. Ch., Peekskill, N. Y	1,000	46. Alanson Trask	1,000
21. John Van Vorst	1,000	47. Withington	1,000
22. Jacob J. Janeway	1,000	48. 1st Church, Newark	1,000
23. Ladies of Huntington, L. I.	1,000	49. Aaron Carter	1,000
24. E. F. Backus	1,000	50-54. Silas Holmes	5,000
25. Van Sinderen	1,000	55. Stephen Colwell	1,000
26. N. Norris Halsted	1,000	56. John Aitken	1,000
27. Maclean	1,000	57. Mrs. P. Bullard	1,000
28. Richard F. Haines	1,000	58. Nathaniel Perry	1,000
29. John P. Jackson	1,000	59. Samuel Hamill	1,000
30. Joseph N. Tuttle	1,000	60. Beers	1,000
31. Gertrude N. Woodhull	1,000	61. Peter Jacobus	1,000
32. Nathaniel W. Townsend	1,000	62. John Maclean	1,000

EXPENSES.

The following is the Schedule of the College expenses for 1882–3:

	1st sess. 14 weeks.	2d sess. 14 weeks.	3d sess. 9 weeks.
Board $3.00 to $6.00 per week.			
Washing, 50 cents per week	$ 7	$ 7	$ 4 50
Tuition, Academic	30	30	15 00
Tuition, School of Science	45	45	30 00
Tuition, Laboratory Chemistry—Senior Elective	10	8	
Room Rents. (See list.)			
Fuel Deposit. Reunion Hall, double rooms, each occupant	4	6	
Fuel Deposit. Reunion Hall, single rooms	5	8	
Fuel Deposit. Edwards Hall & North College, single rooms	6	11	
Fuel Deposit. North, East & West, double rooms, each	4	6	
Fuel Deposit. Witherspoon Hall, double rooms, each	5	7	
Fuel Deposit. Witherspoon Hall, single rooms	7	10	
Gas Deposit. Reunion, East & West, double rooms, each oc.	6	8	4
Gas Deposit. Reunion Hall, Edwards Hall, single rooms	9	10	5
Gas Deposit. Witherspoon Hall, double rooms, each oc.	7	9	5
Gas Deposit. Witherspoon Hall, single rooms	10	12	6
Public rooms	10	10	8
Chem. and Philos. app. (Academic Seniors only)	2 50	2 50	
Apparatus Deposit, Laboratory Chemistry—Senior Elective	7		
Matriculation Fee, payable on entrance	5		
Commencement expenses and Diplomas			12

The charges for fuel and gas are approximations based upon the greatest amount used. An account of the actual consumption is kept with each room, and the exact charge is adjusted at the end of the year. The charge for fuel includes the cost of kindling, and the labor of carrying coal, making fires, &c.

Apparatus Deposits, School of Science.—Students pursuing certain courses in the School of Science are required to make deposits to pay for apparatus injured or destroyed. At the end of the term any excess in favor of the student is placed to his credit on the bill for next session. The deposits in the courses for B. S. are:—Sophomores, first term, $12; second term, $10; third term, $5. Juniors taking any work in Chemical Analysis, second term, $12; third term, $8. Seniors electing the course in Chemistry and Mineralogy, first term, $20; second term, $15; other Seniors taking any work in Chemical Analysis, first term, $15; second term, $10. The deposits in the course for C. E., all payable in the first term, are:—Freshmen, $3; Juniors, $6; Seniors, $4; all of the foregoing being for apparatus in the Engineering Department; also, Sophomores, $5 for the Engineering Department, and $12 for Blowpipe apparatus.

The following is an approximate estimate of the necessary annual expenses for a student occupying a room in College, without including clothes, traveling or vacation expenses:

Board, 38 weeks ($3 to $6), from	$114 to	$228
Washing	19 "	19
Tuition, Room, etc., (see Schedule)	140 "	303
Lights, (Kerosene and Gas)	6 "	25
Books	15 "	25
	$294	$600
Deduct for Students on Scholarships	75	
	$219	

College Bills.

All College expenses, including board and washing, must be paid in advance to the Treasurer of the College.

Students are required to call at the Treasurer's office in the course of the first ten days of each session, and to give information as to their place of boarding, &c., so that their bills can be made out. All bills must be paid within the first four weeks of

the session. Failure to comply with this rule shall deprive the student of the privileges of the College until payment is made, unless excused by special vote of the Faculty.

When a student enters College before the middle of a session, he shall pay in full the usual college charges for that session, with the exception of the charges for board and washing; if he enter after the middle of the session, he shall pay one-half. For board and washing he shall pay in proportion to the time.

When a student leaves the College, whether voluntarily or by dismission, before the middle of any session, one-half of the charges for tuition and public rooms for that session shall be refunded. But in the case of temporary absence and subsequent return, although the absence be for more than half a session, no such rebate shall be granted.

When a student is dismissed from College for any cause, the advance deposit for board, washing, fuel and gas, beyond the time of his dismission shall be refunded to his parent or guardian.

When at the end of the first or second sessions the amount of the advance deposit proves to be in excess of the sum required to defray the board, washing or room bills of any student, the excess shall be credited on his bill for the next session. At the end of the College year the amounts overpaid for board, washing, room-rent, fuel or gas shall be refunded by the treasurer to the student's parent or guardian.

RULES RESPECTING THE RENTAL AND ALLOTMENT OF ROOMS IN THE COLLEGE BUILDINGS.

1. Whenever a student desires to occupy a room in one of the College buildings, he and his parent or guardian shall be required to sign a room agreement, engaging to pay the rent and charges of said room for the ensuing Academic year, or for the remainder of the current year, as the case may be.

2. The tenure of all rooms so engaged shall be subject to the following conditions as regards damages and repairs, viz.:

(1.) All damage done to a room beyond the ordinary wear and tear shall be made good as soon as possible at the expense of the occupant. This provision includes the breakage of glass whether by accident or design. The occupant shall employ the proper College workmen and pay the cost of the repairs at once to the Treasurer. (2) The occupants of a room shall deposit with the Curator the sum of twenty-five cents for every key furnished, which amount shall be refunded on the return of the keys.

3. Students now occupying rooms, or to whom rooms shall hereafter be allotted, may have the option of retaining such rooms until the end of their College course, on condition of annually notifying the Treasurer of their intention of retaining their rooms for the following year, and signing a new room-agreement before May 20th; otherwise their rooms will be considered as vacated, and will be included in the annual allotment.

4. Rooms becoming vacant at or near the close of the College year shall be assigned to new occupants, by lot. The members of the Junior and Sophomore Classes who desire a choice shall draw lots first; then the Freshmen. As soon as the drawing is completed the rooms must at once be chosen in order of priority of choice.

5. No student will be entitled to the room allotted him unless the room agreements shall have been signed and returned to the Treasurer before June 10th.

6. New students shall have the choice of any remaining rooms in the order of their application, after admission into College, on condition of immediately signing the room agreement, and depositing with the Treasurer the rent for the next ensuing session.

7. Every student who draws or retains a room is expected to occupy the same, and pay the rent and charges, or his share thereof, until the end of the College year, unless sooner released by the proper authority.

8. A student who expects to be absent on leave for a term may be released from the above obligation, by notifying the Treasurer before the beginning of the term, and by giving up the room, but no abatement or drawback for room rent will be

made to any student vacating his room during a session, unless by express direction of the Faculty.

9. Whenever, by any contingency, one of two room-mates is permitted or obliged to cancel his room agreement, the remaining occupant must vacate the room at the end of the current session, unless he agrees to pay the whole rent, or provides a room-mate who shall join him in signing a new agreement for the remainder of the College year. When one of two occupants of a room is a member of the Senior Class, the room shall become vacant when the Senior graduates, and be subject to the provisions of Rule 4.

10. When a room becomes vacant during the first or second sessions the Treasurer shall notify the students who may have registered their names as applicants for vacancies, and the room shall be drawn for by them.

11. Exchange of rooms, or substitution of one occupant for another, must be by authority of the Treasurer, and any student moving into a room, without authority *previously obtained*, will be liable to a fine of $10, and be required to vacate the room.

12. No tenant of a College room who is permitted or compelled to vacate such room will be allowed to transfer directly or directly any interest in or title to the room.

13. Students leaving College, or otherwise vacating their rooms, shall be allowed to store their furniture in a room assigned by the College authorities, under the charge of a salesman appointed by the College, where it may be offered for sale. All furniture remaining unsold at the end of three months, if not removed by the owner, will be disposed of at public auction to the highest bidder.

Rev. WM. HARRIS, Treas.

CATALOGUE

OF THE

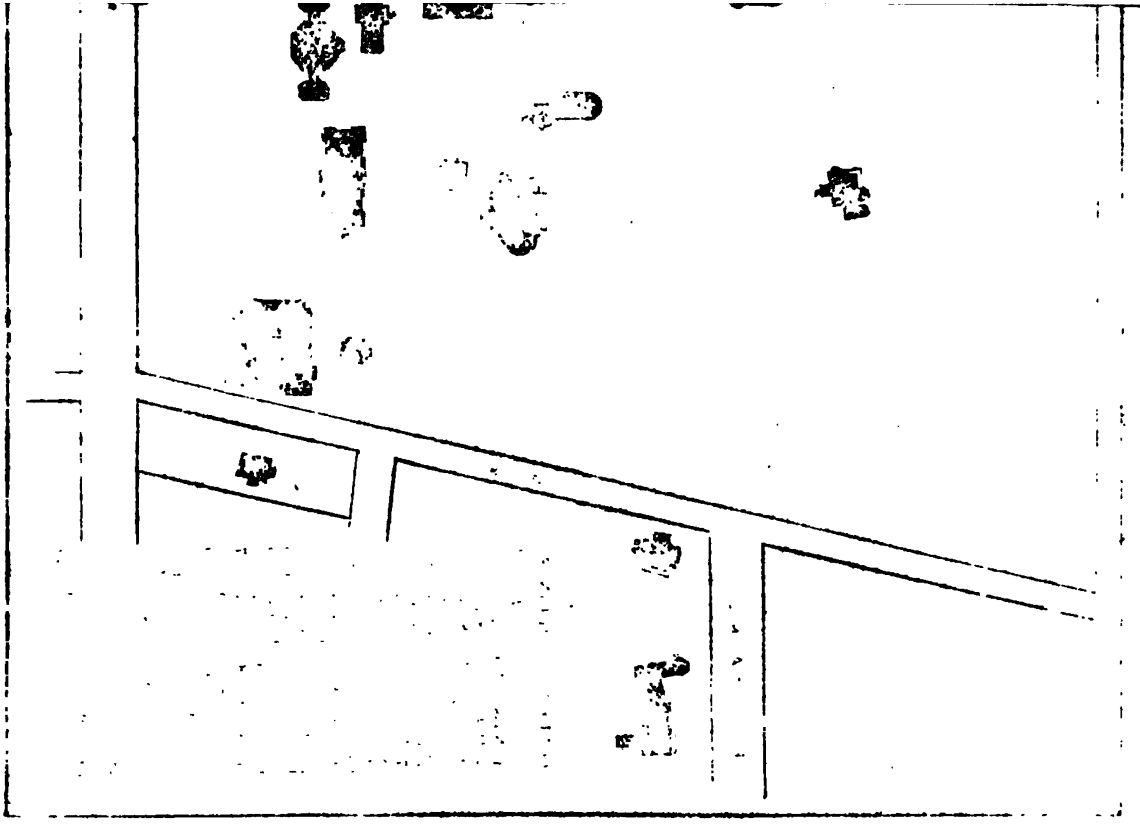
COLLEGE OF NEW JERSEY

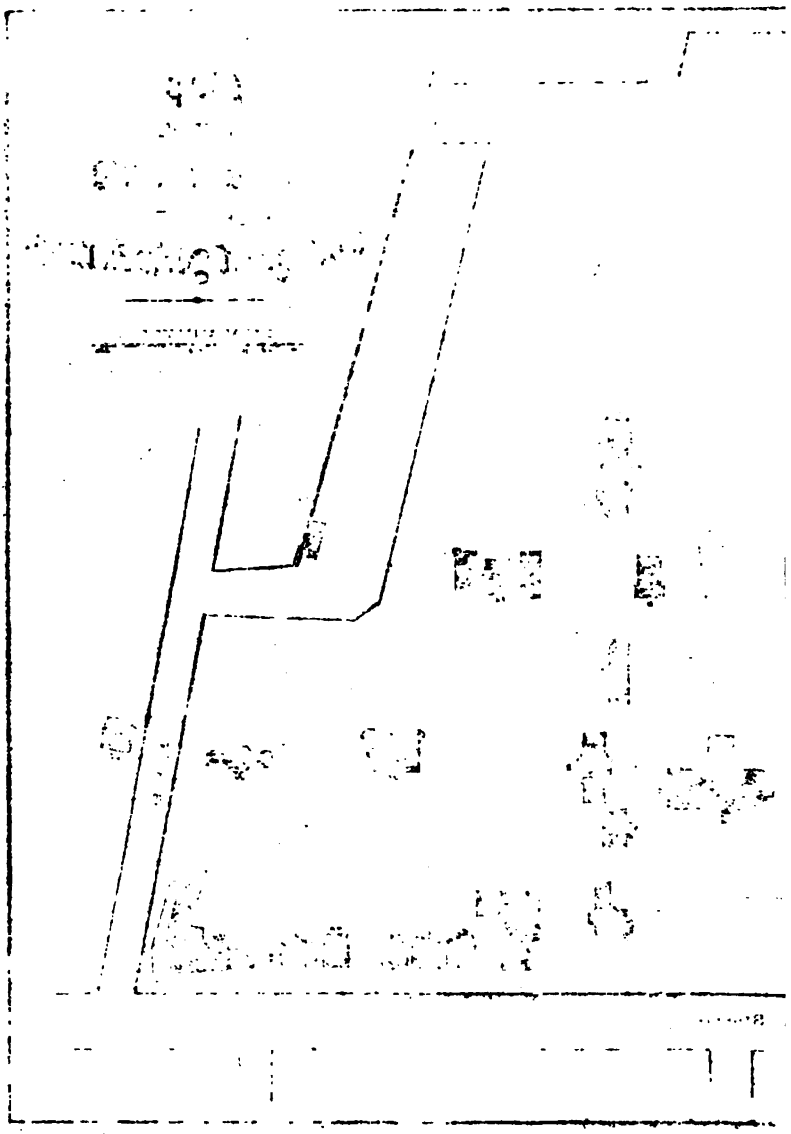
AT

PRINCETON

1883--'84

The Princeton Press :
1883.





CATALOGUE

OF THE

COLLEGE OF NEW JERSEY

AT

PRINCETON

SIGILLUM COLLEGII NEO CAESARIENSIS IN AMERICA
DEI SUB NUMINE VIGET
MORTUIS PRODIMUS
VET TES TA MEN TUM
LUCEM ET VERITATEM

1883--'84

The Princeton Press:
C. S. ROBINSON & CO., PRINCETON
1883

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CALENDAR.

1883.

Sept. 11–12. Examinations for admission.
Sept. 12. First term began, College assembled at 3 P. M. in Marquand Chapel.
Sept. 13. Conditioned and unexamined students assembled in old Chapel—Elective Classes enrolled.
Nov. 8. Stated Meeting of the Board of Trustees.
Nov. 29–Dec. 3. Thanksgiving Recess.
Dec. 10–19. Examinations. End of first term.
Dec. 19–Jan. 2. Christmas vacation.

1884.

Jan. 2. Second term begins.
Feb. 7. Stated Meeting of the Board of Trustees.
Feb. 22. Washington's Birthday—Exercises in old Chapel.
April 9. End of second term.
April 9–16. Spring vacation.
April 16. Third term begins.
May 17. Last day for renewing room-agreements for '84–5.
May 21–29. Senior final examinations.
May 30. Annual allotment of rooms.
June 2–14. Examinations of the three lower classes.
June 15. Bacclaureate sermon.
June 16–18. Commencement Meeting of the Board of Trustees.
June 16. Class Day—Junior Orations, 7.30 P. M.
June 17. Reading of Theses by Scientific students—Annual Meetings of Literary Societies—Annual Meeting of Alumni Association—Lynde Prize Debate, 7.30 P. M.
June 18. CXXXVII. Annual Commencement.
June 19–20. Examinations for admission, held simultaneously in Princeton and Western cities.
June 19–Sept. 10. Long vacation.
Sept. 9–10. Examinations for admission, in Princeton only.

Sept. 10. First term begins—College assembles at 3 P. M. in Marquand Chapel.

Sept. 11. Conditioned and unexamined students assemble in the old Chapel at 10 A. M.

Nov. 6. Stated Meeting of the Board of Trustees.

Nov. 27–Dec. 1. Thanksgiving Recess.

Dec. 17. End of first term.

1883.

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REV. GEORGE L. RAYMOND, L.H.D.,
Professor of Oratory and Æsthetic Criticism.

SAMUEL R. WINANS, PH.D.,
Professor of Greek and Instructor in Sanskrit.

WILLIAM LIBBEY, JR., Sc.D., Princeton,
Professor of Physical Geography and Histology and Vice Director of the E. M. Museum of Geology and Archæology.

WILLIAM B. SCOTT, PH.D., Heidelberg,
Professor of Geology.

HENRY F. OSBORN, Sc.D., Princeton,
Professor of Comparative Anatomy.

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Professor of Descriptive Geometry, Stereotomy and Technical Drawing.

WILLIAM C. PRIME, LL.D.,
Professor of the History of Art.

ALLAN MARQUAND, PH.D., (J. H. U.)
Professor of the History of Art.

ANDREW F. WEST, PH.D.,
Giger Professor of Latin.

ALEXANDER T. ORMOND, PH.D., Princeton,
Professor of Mental Science and Logic.

ALEXANDER JOHNSTON, A. M.,
Professor of Jurisprudence and Political Economy.

HERMANN C. O. HUSS, PH.D., Jena,
Assistant Professor of Modern Languages and Literature.

HENRY B. FINE, A.M.,
Tutor in Mathematics.

JOHN LEVERETT MOORE, A.B.,
Tutor in Latin.

GEORGE BRUCE HALSTED, PH.D., (J. H. U.)
Instructor in Graduate Mathematics.

MALCOLM McNEILL, A.M.,
Instructor in Astronomy.

WILLIAM F. MAGIE, A.M.,
Instructor in Physics.

H. S. S. SMITH, C.E.,
Instructor in Civil Engineering.

FRANK CALVIN ROBERTS, C.E.,
Instructor in Civil Engineering.

LEROY W. McCAY, D.Sc.,
Assistant in Analytical Chemistry and Mineralogy.

LECTURER,

FRANCIS L. PATTON, D.D., LL.D.,
Lecturer upon Metaphysics.

FRANKLIN C. HILL, PH.G.,
Curator of E. M. Museum.

GEORGE L. NICHOLAS,
Assistant Curator of Zoölogical Museum.

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Treasurer.

FREDERIC VINTON, A.M.,
Librarian.

HENRY N. VAN DYKE, A.M.,
Registrar.

EDWIN C. OSBORN,
Treasurer's Assistant.

GEORGE GOLDIE,
Superintendent of Gymnasium.

MATTHEW GOLDIE,
Proctor.

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JOHN G. MURDOCH, A.B.,	*Princeton.*
Chancellor Green Fellow in Mental Science.	
BENJAMIN WIESTLING MITCHELL, A.B.,	*Princeton.*
Fellow in Classical Literature.	
ALBERT PRUDEN CARMAN, A.B.,	*Princeton.*
Class of 1800 Fellow in Experimental Science.	
HENRY M. LANDIS, A.B.,	*Berlin.*
J. S. K. Fellow in Mathematics.	
HENRY A. TOWLE, A.B.,	*Seton Hall.*
Boudinot Fellow in Modern Languages.	
JOHN ASPINWALL HODGE, JR., A.B.,	*Lawrenceville.*
Boudinot Fellow in History.	
WALTER M. RANKIN, A.B., (Williams),	*Princeton.*
E. M. Fellow in Biological Science.	
HENRY CREW, A.B.,	*Princeton.*
Ward Fellow in Economic Electricity.	

GRADUATE STUDENTS.

NAME.	COLLEGE.	RESIDENCE.
John H. Boyd, [1]	S. W. Presb. Univ.,	Jackson, Miss.
Lewis F. Brown, [8]	Franklin & Marshall,	Lancaster, Pa.
Albert P. Carman, [1 16 17]	Princeton,	Manasquan, N. J.
Frederick G. Coan, [1]	Wooster,	Hudson, N. Y.
Henry Dickie, [1]	Dalhousie,	Upper Stewiacke, N. S.
George Edwards, [1]	Princeton,	Des Moines, Iowa.
Thomas D. Elder, [8]	Union,	Pattersonville, N. Y.
Charles E. Fay, [8]	Union,	Northampton, N. Y.
J. Moore Fergusson, [1]	Edinburgh,	Edinburgh, Scotland.
Wm. Parker Finney, [1]	Princeton,	Bel Air, Md.
W. Matheson Fraser, [1]	Dalhousie,	Halifax, N. S.
J. D. M. Gillivray, [1]	Dalhousie,	Clifton, N. S.
Frank P. Gilman, [12]	Princeton,	Mount Norris, N. Y.
Alexander Hall, [1]	Trin. Coll.,	Dublin, Belfast, Ireland.
Gerard B. Hallock, [1 3]	Princeton,	Steubenville, Ohio.
Dwight C. Hanna, [1]	Wooster,	Savannah, Ohio.
William G. Hanna, [1]	Toronto Univ.,	Brussels, Ont.
John H. Herbener, [1]	Hampton Sidney,	Portsmouth, Va.
John Grier Hibben, [1]	Princeton,	Peoria, Ill.
Herbert S. Hines, [8]	Union,	Salem, N. Y.
B. Lewis Hobson, [1]	Central Univ.,	Lexington, Mo.
Samuel V. V. Holmes, [1 6 8]	Williams,	Albany, N. Y.
H. Hughes, [1]	Anglesea, Wales,	Penshosiligwy.
A. M. Irvine, [1]	Centre,	Danville, Ky.
Geo. N. Karner, [1]	Princeton,	Sayreville, N. J.
Walter Laidlaw, [4 14]	Toronto Univ.,	Barris, Ont.
Evan M. Landis, [1]	Princeton,	Colebrookdale, Pa.
Edson Allaway Lowe, [1]	Columbian Univ.,	Washington, D.C.
George A. Makely, [1]	Williams,	Albany, N. Y.
W. L. McEwan, [8]	Centre,	Frankfort, Ky.
John McInnis, [1]	Toronto Univ.,	Owen Sound, Ont.

Donald C. McLaren, [8]	Princeton,	Princeton, N. J.
W. H. McMurray, [1]	Westminster,	McMurray, Pa.
Benjamin W. Mitchell, [1 7 8 15]	Princeton,	Middletown, Pa.
James C. Moffat, [1]	Princeton,	Princeton, N. J.
J. L. Moore, [15]	Princeton,	Orange, N. J.
Russell W. Moore, [1 11 12 14 17]	Princeton,	Orange, N. J.
John G. Murdoch, [1 8]	Princeton,	Elizabeth, N. J.
S. C. Murray, [1] .	Mt. Allison,	New Brunswick Can.
W. T. Overstreet, [1 8]	Centre,	McAfee, Ky.
Ward Peabody, [8]	Princeton,	Princeton, N. J.
Rev. Jno. E. Peters, [1 11 12 13 14]	Princeton,	Princeton, N. J.
Fred. A. C. Perrine, [1 16]	Princeton,	Freehold, N. J.
Walter M. Rankin, [11 13 14]	Williams,	Newark, N. J.
James C. Russell, [1]	Princeton,	Danville, Pa.
William E. Russell, [1]	Princeton,	Cumberland, Md.
Francis E. Smiley, [1]	Univ. of Penn.,	Philadelphia, Pa.
Hartley T. Updike, [1 8]	Princeton,	Pennington, N. J.
George L. Van Alen, [8]	Princeton,	Danville, Pa.
M. N. Wagner, [1]	Dickinson,	Carlisle, Pa.
Albert M. West, [1]	West. Univ. of Penn.,	Pittsburg, Pa.
Irving P. Withington, [8]	Princeton,	New York City.
David W. Woods, [1]	Princeton,	Lewistown, Pa.
J. B. Work, [1]	Westminster,	Brady, Pa.
Chas. I. Young, [16 17]	Princeton,	Princeton, N. J.

GRADUATE STUDENTS, ... 55.

1. Cont. Philos., PRESIDENT.
2. Early English, PROF. MURRAY.
3. Anglo Saxon, PROF. HUNT.
4. Eng. Lit., PROF. MURRAY.
5. Quaternions and Determinants, DR. HALSTED.
6. Hist. of Philos., PRESIDENT.
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8. Plato's Philos., PROF. ORRIS.
9. Astronomy, PROF. YOUNG.
10. Kant, PROF. SLOANE.
11. Biology, PROF. MACLOSKIE.
12. Histology, PROF. LIBBEY.
13. Palæontology and Embryology, PROF. SCOTT.
14. Comp. Anatomy, PROF. OSBORN.
15. Sanskrit, PROF. WINANS.
16. Physics, PROF. BRACKETT.
17. Anal. Chem., PROF. CORNWALL.

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ARNOLD GUYOT, *Physical Geography.*
JOHN T. DUFFIELD, *Mathematics.*
J. STILLWELL SCHANCK, *General and Applied Chemistry.*
HENRY C. CAMERON, *Greek Language and Literature.*
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JOSEPH KARGÉ, *Modern Languages and Literature.*
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CHARLES A. YOUNG, *Astronomy.*
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CHARLES G. ROCKWOOD, JR., *Mathematics.*
THEODORE W. HUNT, *Rhetoric and English Language.*
WILLIAM M. SLOANE, *History, Political Science.*
GEORGE L. RAYMOND, *Oratory and Æsthetic Criticism.*
SAMUEL R. WINANS, *Greek, Sanskrit.*
WILLIAM LIBBEY, JR., *Physical Geography and Histology.*
WILLIAM B. SCOTT, *Geology, Palæontology.*
HENRY F. OSBORN, *Anatomy of the Vertebrates.*
WILLIAM C. PRIME, *History of Art.*
ALLAN MARQUAND, *History of Art.*
ANDREW F. WEST, *Latin.*
ALEXANDER T. ORMOND, *Logic, Ethics.*
ALEXANDER JOHNSTON, *Jurisprudence and Political Economy.*
HENRY B. FINE, *Mathematics.*
J. LEVERETT MOORE, *Latin.*
GEORGE B. HALSTED, *Higher Mathematics.*
MALCOLM McNEILL, *Practical Astronomy.*
WILLIAM F. MAGIE, *Physics.*
FRANCIS L. PATTON, *Lecturer on Metaphysics.*

UNDERGRADUATES.

SENIOR CLASS.

William Alton, Jr.,	Chicago, Ill.,	18 W W H
William Eugene Ayres,	Toms River, N. J.,	8 S M R H
James Marcus Baldwin,	Columbia, S. C.,	1 N R H
Edwin Starr Belknap,	Newburgh, N. Y.,	10 E M W H
Lawrence White Bigham,	New Wilmington, Pa.,	74 U H
Alvin Blackwell,	Pennington, N. J.,	17 N
Josiah Low Blackwell,	New York City,	3 W M W H
John Denniston Blair,	Hollidaysburg, Pa.,	10 E W H
John Yeomans Boyd,	Harrisburg, Pa.,	4 E M W H
James Edward Burt,	East Stroudsburg, Pa.,	——
George Prentiss Butler,	Yonkers, N. Y.,	8 W M W H
George Haywood Carpenter,	Washington, C. H., O.,	20 E W H
Albert Aubray Castle,	Alexandria, O.,	Mrs. Warren's
William Chester,	Washington, D. C.,	14 S E
Henry Franklin Coan,	Hudson, N. Y.,	Seminary
Francis Lowell Coolidge,	Boston, Mass.,	14 E W H
John C. Daves,	Baltimore, Md.,	L U H
Charles Edgar Davis,	Hightstown, N. J.,	Mrs. Warren's
Leonidas Dennis,	Johnsonburg, N. J.,	6 S W
Edward Blackwell Dolton,	Trenton, N. J.,	5 N E
Samuel G. Dornblaser,	Lamar, Pa.,	13 S M R H
Charles Bernard Dunn,	Newton, N. J.,	19 N W
Seneca Egbert,	Franklin, Pa.,	6 S R H
William Erdman,	Jamestown, N. Y.,	1 E M W H
George Ross Eshleman,	Lancaster, Pa.,	Mrs. Smith's
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J. Franklin Gulick, Jr.,	Princeton, N. J.,	7 N E

Joseph Henry Gulick,	Princeton, N. J.,	7 N E
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Angier Bailey Hobbs,	Washington, D. C.,	14 S E
Charles James Howell, Jr.,	Poughkeepsie, N. Y.,	9 N E H
Randall Hutchinson,	Trenton, N. J.,	9 S E H
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Ferdinand Jelke, Jr.,	Cincinnati, O.,	20 E W H
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William Marvin Langdon,	New York City,	13 S W
James Marshall Lawson,	Oxford, Pa.,	11 S M R H
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Emil Leute,	Philadelphia, Pa.,	8 N E H
Alvin Fayette Lewis,	Bowling Green, Ky.,	37 S E H
David Millard Look,	Louisville, Ky.,	4 E M W H
Ayres D. Lundy,	Williamsport, Pa.,	9 S R H
Robert Gordon Mackay,	Philadelphia, Pa.,	1 N E H
Charles Tabele MacMullin,	Glendale, O.,	10 S R H
Starling L. Marshall,	Henderson, Ky.,	10 S R H
Joseph Edgar Maxwell,	Millersburg, O.,	18 N E
Thomas J. McCormick,	Long Island City, N. Y.,	8 S M R H
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R. Fulton McMahon,	Cambridge, O.,	Mrs. Vanderbilt's
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Eugene Miller,	Bowling Green, Ky.,	40 S E H
Ivan D. Mishoff,	Lovtcha, Bulgaria,	42 N E H
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John Campbell Murray,	Princeton, N. J.,	Mrs. Murray's
William Latta Nassau,	Trenton, N. J.,	9 N E
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Charles Frederick Parmly,	New York City,	10 N R H
Henry Neill Paul,	Philadelphia, Pa.,	11 S E
Samuel Johnson Poe,	Baltimore, Md.,	3 E W H
Atlee Pomerene,	Berlin, O.,	14 N E
Da Costa Pomerene,	Berlin, O.,	14 N E
Robert Kelly Prentice,	New York City,	11 N E
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Alexander Spencer Rowland,	Princeton, N. J.,	Mr. Rowland's
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John Stevens,	Washingtonville, N. Y.,	10 E M W H
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Albert Taylor,	New York City,	14 N W
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Ambrose Giddings Todd,	Madison, N. J.,	6 E M W H
Reverdy Johnson Travers,	New York City,	3 E M W H
Alexander Horton Travis,	Brooklyn, N. Y.,	32 S E H
John Rodolph Urner,	Pottstown, Pa.,	Mr. Carpenter's
Robert Woods Van Kirk,	South Strabane, Pa.,	18 N E
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Stanley White,	New York City,	Mrs. Newton's
George Edward Woodhull,	Marinette, Wis.,	14 N M R H
William Patton Woods,	Lewistown, Pa.,	6 E M W H
Arthur Lyon Young,	Philadelphia, Pa.,	33 N E H

SENIORS, ... 100

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Chester Allan Arthur, Jr.,	New York City,	14 & 15 U H

†Signifies under conditions, or not fully examined.

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James Wilson Bayard,	Germantown, Pa.,	20 N W
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Joseph Dorsett Bedle, Jr.,	Jersey City, N. J.,	10 W W H
Grant Robinson Bennett,	Portage, Wis.,	14 S W
William Duffield Bell,	Fort Leavenworth, Ks.,	29 S E H
Clinton Wallace Bird,	New York City,	13 N E
Edward King Blades,	Watseka, Ill.,	Mr. Hudnut's
Samuel McCrea Brann,	Charlton, N. Y.,	20 S W
John Woods Brown, Jr.,	Milton, Pa.,	19 S E
Henry Caldwell Bryan,	Washington, D. C.,	P, U H
Frederick Wing Burleigh,	Fitchburg, Mass.,	12 N E
Robert Eber Carter,	Huntington, L. I.,	31 N E H
Warren Blanchard Chapin,	New York City,	21 S E H
Charles Steele Clark,	Indiana, Pa.,	17 W W H
Alex Emile Clerihew,	Cincinnati, O.,	5 S R H
James Harlan Cleveland,	Augusta, Ky.,	5 W M W H
John Haughton Coney,	Cincinnati, O.,	5 S R H
Wm. Waddell Conner,	Washington, Iowa,	2 N M R H
John Crossan Cooper,	Pittsburg, Pa.,	11 E W H
Monroe Crawford,	Hoboken, N. J.,	17 S E
Aaron Van Syckle Dawes,	Hightstown, N. J.,	25 S E H
Sherrerd Depue,	Newark, N. J.,	Mr. Geo. Goldie's
John Rogers Dickey,	Philadelphia, Pa.,	19 S E
William Andrews Dickey,	Manchester, N. H.,	P, U H
Malvern Nicholas Due,	Wetumpka, Ala.,	Mr. Zapf's
Frank Strong Dunshee,	Thomson, Ill.,	25 N E H
Duncan Edwards,	Brooklyn, N. Y.,	31 S E H
Alexander Butler Ernst,	Covington, Ky.,	9 N W
Fredk. Butterfield Faitoute,	Newark, N. J.,	12 U H
J. Clinton Foltz,	Lancaster, Pa.,	4 S M R H
Joseph Cuther Foster,	Cincinnati, O.,	8 E M W H
William Resor Foster,	Cincinnati, O.,	8 E M W H
Abram Bradley Gaither,	Baltimore, Md.,	7 S E
Carey Breckenridge Gamble,	Baltimore, Md.,	13 E W H
Hiram Abiff Gooch,	Louisville, Ky.,	6 S E
†John Lorimer Graham,	New York City,	16 W W H
Frank M. Griffith,	Jacksonville, Ill.,	15 E W H

Wm. Maclay Hall, Jr.,	Bedford, Pa.,	4 S R H
Alexander Hardcastle,	Goldsboro', Md.,	4 S R H
J. Borden Harriman,	New York City,	10 S E
John Morgan Harris,	Taylorsville, Pa.,	Mr. Roberts'
James Edward Hayes,	Princeton, N. J.,	Mrs. Hayes'
Walter Bryant Head,	Pittsburg, Pa.,	46 U H
James Robert Hughes,	Bellefonte, Pa.,	17 S E
Wm. Fessenden Jackson,	Newark, N. J.,	11 N W
John Gundry Jennings,	Brady's Bend, Pa.,	Mr. Durner's
John Edgar Johnson, Jr.,	New York City,	13 S E
Henry Kirkland Jones,	Fortress Monroe, Va.,	7 S M R H
Eaton McLean Kempshall,	Elizabeth, N. J.,	10 N M R H
Sanford Norris Knapp,	Peekskill, N. Y.,	18 N W
Charles Rhodes Knox,	Bloomfield, N. J.,	10 S M R H
Henry Lamberton,	Winona, Minn.,	2 N R H
Reuben S. Lawrence,	Wichita, Kan.,	19 S M R H
S. Harper Leeper, Jr.,	Frankfort Springs, Pa.,	19 N E
John C. Lord,	Morristown, N. J.,	H, U H
William Henry Lynch,	Fair Hill, Md.,	22 N E H
David Hunter McAlpine, Jr.,	New York City,	12 W W H
Charles Flint McClumpha,	Amsterdam, N. Y.,	13 N W
John Bird McFerran, Jr.,	Louisville, Ky.,	5 E M W H
Clarence Walworth McIlvaine,	St. Albans, Vt.,	6 E W H
Wm. Brown McIlvaine,	Peoria, Ill.,	4 W W H
John Kimberly Mumford,	Syracuse, N. Y.,	15 N E
James Percy Murray,	Princeton, N. J.,	Dr. Murray's
Howard G. Myers,	Albany, N. Y.,	13 N W
Max Brunswick Nahm,	Bowling Green, Ky.,	1 S M R H
Robert Meade Parker,	Newark, N. J.,	8 S R H
Jno. M. Penick,	Louisville, Ky.,	27 S E H
Theodore Pershing,	Pottsville, Pa.,	16 S E
James Potter,	Baltimore, Md.,	3 E M W H
William Pickersgill Riggs,	Baltimore, Md.,	7 W M W H
Ford Winfield Rochelle,	Sparta, N. J.,	2 N E H
Paul Adrian Scharff,	Newark, N. J.,	2 S E H
Joseph Bernard Shea,	Pittsburg, Pa.,	17 S W
Alfred Bowne Sherwood,	Scotchtown, N. Y.,	Miss Lockard's
Augustine Coleman Smith,	New York City,	14 W W H

Benjamin Bosworth Smith,	Louisville, Ky.,	Mr. Hudnut's
Everett Lansing Smith,	New York City,	5 W M W H
Robert Little Smith,	Appleton, Wis.,	17 N W
Charles Reid Spence,	Baltimore, Md.,	11 S W
A. Livingston Stavely,	Lahaska, Pa.,	40 N E H
William DeWitt Sterry,	New York City,	20 S E
Jonathan Sturges,	New York City,	8 E W H
George E. Swartz,	Milton, Pa.,	10 S E H
Henry Dallas Thompson,	Catskill, N. Y.,	12 S M R H
Lewis Howell Towler,	Corunna, Mich.,	Mrs. Harvey's
Howard Payson Trask,	Fulton, Ill.,	8 N M R H
Arthur Magie Tree,	Chicago, Ill.,	2 E M W H
Geo. Urquhart, Jr.,	Wilkes Barre, Pa.,	11 S E H
Charles Van Ausdal,	Dayton, O.,	12 N W
Paul Weir,	Owensboro, Ky.,	9 N M R H
James McIver Wicker,	Sanford, N. C.,	41 S E H
William Lane Wilbur,	Hightstown, N. J.,	23 N E H
Robert Parmelee Wilder,	Princeton, N. J.,	Mr. Wilder's
Edmund Wilson,	Shrewsbury, N. J.,	10 S M R H
Frederic Hart Wilson,	Philadelphia, Pa.,	13 N M R H
Edward Scott Wood,	Trenton, N. J.,	5 N R H
William Edwin Woodend,	Huntington, L. I.,	17 N E H
Frank Stiles Woodruff,	Elizabeth, N. J.,	10 N E
Charles Robert Wylie, Jr.,	Pottstown, Pa.,	28 S E H
George Douglas Young,	New York City,	1 W M W H

JUNIORS, ... 103

SOPHOMORE CLASS.

James Collins Adams,	Oakland, Cal.,	9 E M W H
William Arrott,	Pittsburg, Pa.,	5 S W
Pearce Bailey,	Morristown, N. J.,	11 W W H
Joseph Deyoe Baucus,	Bacon Hill, N. Y.,	8 N R H
Dan Denison Bickham,	Dayton, O.,	16 N W
Montgomery Blair, Jr.,	Washington, D. C.,	10 W M W H
Robert Bruce Bowie,	Baltimore, Md.,	4 N E H

†Herbert Lamotte Brice,	Lima, O.,	8 W W H
James Woodward Clark,	Indiana, Pa.,	17 W W H
John Calhoun,	Van Wert, O.,	17 & 20 S E H
Wm. Adley Calhoun,	Van Wert, O.,	17 & 20 S E H
Arnold Guyot Cameron,	Princeton, N. J.,	Prof. Cameron's
James Cochran Carter,	Boonton, N. J.,	21 N E H
Samuel Thompson Carter, Jr.,	Huntington, L. I.,	30 N E H
Horace Newton Congar, Jr.,	Newark, N. J.,	3 N R H
Charles M. De Camp,	Pittsburg, Pa.,	Mrs. Anderson's
John Henry Denny,	Winchester, Va.,	O, U H
William S. Dodd,	Newark, N. J.,	Mrs. Lavake's
Nathan Brooke Dolan,	Philadelphia, Pa.,	8 W W H
Anthony Woodward Durell,	Pennington, N. J.,	18 S W
George A. Tyron Eddy,	Brockport, N. Y.,	20 N E
Wm. Simpson Elder,	Warsaw, O.,	14 N E H
Harry Charles Elsing,	South Evanston, Ill.,	39 S E H
Charles Rosenbury Erdman,	Jamestown, N. Y.,	1 E M W H
Fred Evans, Jr.,	Franklin, Pa.,	12 N M R H
Frank Bateman Everitt,	Jamesburg, N. J.,	39 N E H
Wilson Farrand,	Newark, N. J.,	36 S E H
Matthew Corry Fleming,	Xenia, O.,	3 W W H
Harry H. Forsyth,	Princeton, N. J.,	Mr. Forsyth's
George Irvine Foster,	Albany, Oregon,	10 S W
Joseph Holt Gaines,	Fayetteville, W. Va.,	7 N M R H
William Turbitt Graham,	Port Royal, Pa.,	10 N E H
James Sproat Green, Jr.,	Elizabeth, N. J.,	B, U H
Robert Stockton Green, Jr.,	Elizabeth, N. J.,	8 S R H
†Wm. Alexander Guthrie,	Indiana, Pa.,	7 N W
Wm. D. Waples Hall,	Lewes, Del.,	1 N M R H
R. T. Haines Halsey,	New Orleans, La.,	4 N R H
Marshal Halstead,	Cincinnati, O.,	7 S W
John W. Harding,	Tunkhannock, Pa.,	5 S E H
J. Arden Harriman,	New York City,	4 W M W H
Tracy Hyde Harris,	Hightstown, N. J.,	Cook Cottage
Charles Helliwell.	Princeton, N. J.,	42 S E H
Harry Hillard,	Morristown, N. J.,	8 N R H
Hugh Lenox Hodge,	Hartford, Conn.,	7 N R H
Richard Morse Hodge,	Hartford, Conn.,	7 N R H

John Parke Hood,	Mt. Airy, Pa.,	6 N R H
Wm. Herbert Hudnut,	Orange, N. J.,	Mr. Hudnut's
Robert Crawford Johnston,	Hollidaysburg, Pa.,	6 N R H
Harry W. Jessup,	Montrose, Pa.,	9 N R H
William Jessup,	Montrose, Pa.,	9 N R H
Francis Fisher Kane,	Philadelphia, Pa.,	G, U H
Wm. Dickey Kearns,	Pittsburg, Pa.,	4 N M R H
Henry Lawson Kemper, Jr.,	Cincinnati, O.,	10 W M W H
Henry Cumming Lamar,	Augusta, Ga.,	5 N M R H
Augustus Strong Mapes,	Goshen, N. Y.,	24 N E H
John Cass Mathis,	Springfield, Ill.,	12 S E
John Samuel McAdam,	Newport, R. I.,	Mrs. Harvey's
George Brinton McClellan, Jr.,	Orange, N. J.,	4 W M W H
John Wm. McKechnie,	Cincinnati, O.,	12 S E
Carroll McKenny,	Washington, D. C.,	20 W W H
Wm. Stevenson McLaren,	Philadelphia, Pa.,	Mr. McLaren's
John McMullin,	San Francisco, Cal.,	9 E M W H
Harris Cornell Meserole,	Brooklyn, N. Y.,	D, U H
Edward Demoss Miller,	Gerrardstown, W. Va.,	15 S M R H
David Meriwether Milton,	Louisville, Ky.,	7 E W H
Joseph Carroll Montanye,	Haltboro, Pa.,	1 N M R H
John Alexander Montgomery,	Trenton, N. J.,	3 N R H
Matthew Morgan,	New York City,	17 E W H
Andrew Linn Nelden,	Newton, N. J.,	K, U H
Jno. Stevens Parker,	Princeton, N. J.,	Mr. Parker's
Stewart Paton,	New York City,	Mr. Goldie's
William Rankin,	Newark, N. J.,	20 N E
Joseph Pope Ranney,	Elizabeth, N. J.,	12 N E H
Alfred Nathan Raven,	Oswego, N. Y.,	5 N E H
Clinton Leicester Rayner,	New York City,	6 W M W H
Taylor Reed,	Reedsville, Pa.,	17 N E
Arthur Wm. Remington,	Great Barrington, Mass.,	Mr. Zapf's
Frank Day Reynolds,	East Orange, N. J.,	Mrs. Anderson's
George Reynolds,	Orange, N. J.,	4 N R H
Edward Orth Robinson,	Harrisburg, Pa.,	15 S E
George Black Roddy,	New Bloomfield, Pa.,	18 N
Richard Reid Rogers,	Mt. Sterling, Ky.,	19 E W H
George Lester Rundle,	Walpack Centre, N. J.,	37 N E H

Walter King Sharpe,	Chambersburg, Pa.,	6 W M W H
James Prestly Shaw,	Pittsburg, Pa.,	8 S W
Ralph Crowley Sheldon,	Jamestown, N. Y.,	43 U H
Jno. Archer Silver,	Dear Creek, Md.,	27 N E H
Renwick Thompson Sloane,	Allegheny City, Pa.,	Prof. Sloane's
Alex. Stewart,	Chambersburg, Pa.,	6 N E
Charles Grimes Stoddard,	Dayton, O.,	2 E W H
Oliver Smith Strong,	Montclair, N. J.,	Miss Smith's
Wm. Ferree Timlow,	Amity, N. Y.,	6 N E
Llewellyn Thomas,	New York City,	9 E W H
Robert Duncan Totten,	Pittsburg, Pa.,	I, U H
Charles Sloan Van Syckel,	Trenton, N. J.,	9 W W H
James A. Van Wagenen,	New York City,	Mr. Goldie's
Albert Chandler Wall,	Hoboken, N. J.,	35 S E H
Lewis Rodman Wanamaker,	Philadelphia, Pa.,	12 E W H
Wm. Phelps Wood,	Trenton, N. J.,	5 N R H

SOPHOMORES, ... 99

FRESHMAN CLASS.

John Erskine Adams,	Augusta, Ga.,	6 S E
Thornwell Gillespie Anderson,	Morganton, N. C.,	M, U H
Wilson Shaw Arbuthnot,	Pittsburg, Pa.,	I, U H
James Seguin de Benneville,	Philadelphia, Pa.,	Mrs. Smith's
George Titus Berry,	Caldwell, N. J.,	20 N E H
†Howard Covey Betson,	Greensborough, Md.,	18 S M R H
Stewart Brown,	New York City,	Mr. Zapf's
Charles Shepard Bryan,	Newberne, N. C.,	12 S W
Robert R. P. Bradford,	Dover, Del.,	2 W W H
James Parker Dodd,	Newark, N. J.,	Mrs. Ferguson's
Samuel Thompson Dodd,	Huntington, L. I.,	28 N E H
†Edward Dowsett,	Honolulu, Sandwich Isles,	K, U H
Wm. John Duane,	Bergen Point, N. J.,	2 W M W H
Herbert Elder,	Harrisburg, Pa.,	35 N E H
John Wilson Elder,	Clarion, Pa.,	7 N W
John Fieldhouse Fenton,	Trenton, N. J.,	41 N E H
Eugene Maurice Fitzgerald,	Washington, D. C.,	72 U H

William Holmes Forsyth,	Princeton, N. J.,	Mr. Forsyth's
Robert Gilchrist, Jr.,	Jersey City, N.J.,	Mrs. Anderson's
Harry Lomison Goehring,	Irwin Station, Pa.,	——
Edward Field Goltra,	Jacksonville, Ill.,	Mrs. Stonaker's
Wm. Judd Goudy,	Chicago, Ill.,	16 E W H
Adolph Gustave Greenberg,	Newark, N. J.,	18 N E H
Clarence Halstead,	Cincinnati, O.,	7 S W
Henry Cator Heverin,	Philadelphia, Pa.,	Mrs. Fine's
Robert James Hunt,	Trenton, N. J.,	41 N E H
Solomon Stanger Iszard,	Glassboro, N. J.,	50 U H
Thomas Prather Jacob, Jr.,	Louisville, Ky.,	5 S M R H
Roger Bruce Cash Johnson,	Nassau, W. I.,	50 U H
Wm. Hallock Johnson,	New York City,	13 S E
Chas. Pitt Fid Joyce,	Washington, D. C.,	Mr. Goldie's
George Armstrong Kelly, Jr.,	Pittsburg, Pa.,	42 U H
‡John Rudolph Kenyon,	Kingston, N. Y.,	77 U H
Mark Harvey Liddell,	Clearfield, Pa.,	16 N E H
James Henry Lockhart,	Pittsburg, Pa.,	5 S W
Charles Hill Macloskie,	Princeton, N. J.,	Prof. Macloskie's
Robert William Mason,	Cincinnati, O.,	16 N
Frank Keller McCance,	Allegheny City, Pa.,	Mrs. Stonaker's
Albert Lincoln Mershon,	Princeton, N. J.,	Mrs. Mershon's
William Edwin Miller,	Warsaw, N. Y.,	Mrs. Harvey's
Wm. Watts Montgomery, Jr.,	Augusta, Ga.,	Mrs. Fine's
‡St. Marc Mundy,	Louisville, Ky.,	1 W W H
William Montgomery Nichol,	Indiana, Pa.,	38 S E H
Lyman Halter Nutting,	Lebanon, Pa.,	2 U H
Gordon Paddock,	New York City,	20 U H
James Paige,	Minneapolis, Minn.,	32 N E H
Albert George Parker,	Oswego, N. Y.,	25 N
Hamilton Parrish, Jr.,	Philadelphia, Pa.,	48 & 49 U H
‡Wm. Wallace Patrick,	Pittsburg, Pa.,	44 & 45 U H
Horace Marshall Porter,	New York City,	2 S R H
John Wahl Queen, Jr.,	Mount Pleasant, N. J.,	15 N E H
George Livingston Robinson,	West Hebron, N. Y.,	25 N
Clarence William Rouse,	W. New Brighton, S. I.,	Miss Leigh's

‡Admitted on trial.

Henry Seymour Savage,	Virginia, Ill.,	Mrs. Stonaker's
Joseph Weber Savage, Jr.,	Rahway, N. J.,	16 S E H
Alfred Hedges Scofield,	Easthampton, Mass.,	Miss Armstrong's
Burtis Skidmore,	New York City,	——
Edward Walker Scott,	Richmond, Va.,	73 U H
George Beale Sloan, Jr.,	Oswego, N. Y.,	Mr. Lavake's
William Marvin Spalding,	Denver, Colo.,	1 U H
Franklin Spencer Spalding,	Denver, Colo.,	1 U H
Arthur Robins Speer,	Pittsburg, Pa.,	6 S M R H
Louis Stearns,	New York City,	33 S E H
Pearl Lambert Sternbergh,	Reading, Pa.,	79 U H
Isaac Lanning Van Schoick,	Perrineville, N. J.,	14 S M R H
Lucien Waggener, Jr.,	Frankfort, Ky.,	Miss Smith's
Hallam Gregory Williamson,	Washington, D. C.,	Mr. Goldie's
Joseph White Williams,	Paterson, N. J.,	24 S E H

FRESHMEN, ... 68

SPECIAL STUDENTS.

NOT CANDIDATES FOR A DEGREE.

John Morse Austin,[3]	Philadelphia, Pa.,	2 N R H
James Harrington Boyd,[1]	Wooster, O.,	Mr. Warren's
Edward L. Bradley,[4]	Philadelphia, Pa.,	5 N W
Eugene Calvin Coulter,[1]	Brockfield, O.,	27 N
Jeptha Lee Holton,[1]	Steubenville, O.,	19 N E
Chester F. Lee,[4]	Sandusky, O.,	9 S R H
John H. Nixon,[1]	Wilmington, Del.,	N, U H
Chas. Henry Smith,[3]	Philadelphia, Pa.,	18 & 19 S E H
Francis Harding White,[1]	Washington, D. C.,	17 S M R H

1. First Year of Course. 2. Second Year. 3. Third Year. 4. Fourth Year.

SPECIALS, ... 9

SUMMARY.

SENIORS,	100
JUNIORS,	103
SOPHOMORES,	99
FRESHMEN,	68
SPECIALS,	9
TOTAL,	379

THE

JOHN C. GREEN SCHOOL OF SCIENCE.

JAMES McCOSH, PRESIDENT, *Psychology, Biblical Instruction.*
ARNOLD GUYOT, *Physical Geography.*
J. STILLWELL SCHANCK, *General Chemistry.*
CYRUS F. BRACKETT, *Physics.*
HENRY B. CORNWALL, *Analytical Chemistry and Mineralogy.*
GEORGE MACLOSKIE, *Botany, Zoölogy.*
JAMES O. MURRAY, *English Literature and Language.*
CHARLES McMILLAN, *Civil Engineering.*
CHARLES A. YOUNG, *Astronomy.*
CHARLES G. ROCKWOOD, JR., *Mathematics.*
THEODORE W. HUNT, *Rhetoric, English Language.*
GEORGE L. RAYMOND, *Oratory and Æsthetic Criticism.*
WILLIAM LIBBEY, JR., *Hypsometry, Meteorology, Histology.*
WILLIAM B. SCOTT, *Geology.*
HENRY F. OSBORN, *Comparative Anatomy.*
FREDERICK N. WILLSON, *Descriptive Geometry, Stereotomy, Drawing.*
ALEXANDER T. ORMOND, *Logic.*
ALEXANDER JOHNSTON, *Political Economy.*
HERMANN C. O. HUSS, *French, German.*
GEORGE BRUCE HALSTED, *Mathematics.*
MALCOLM McNEILL, *Practical Astronomy.*
H. S. S. SMITH, *Civil Engineering.*
FRANK C. ROBERTS, *Civil Engineering.*
LEROY W. McCAY, *Analytical Chemistry.*

UNDERGRADUATES.

SENIOR CLASS.

I. Candidates for B.S. II. For C.E.

II.	†Harry Lewis Baldwin,	Denver, Colo.,	26 S E H
I.	Henry McKeen Black,	Jobstown, N. J.,	15 S E H
II.	†Andrew McNair Coyle,	Washington, D. C.,	Mr. A. Dohm's
II.	Samuel M. Cauldwell,	New York City,	7 E M W H
I.	Alexander Gray Fell,	Wilkes Barre, Pa.,	Mr. Carpenter's
I.	Wm. H. Gulick,	Princeton, N. J.,	Mr. Gulick's
II.	Frank S. Hicks,	San Francisco, Cal.,	1 E W H
II.	Moorhead C. Kennedy,	Chambersburg, Pa.,	9 W M W H
II.	Robert McKnight, Jr.,	Pittsburg, Pa.,	Mrs. Warren's
I.	Frank H. Miller,	Cincinnati, O.,	18 W W H
II.	Alexander Moffat,	Princeton, N. J.,	Dr. Moffat's
I.	Harry C. Munger,	Plainfield, N. J.,	19 N E H
I.	John Warne Phillips,	Lawrenceville, N. J.,	12 S E H
II.	William Tod,	Glasgow, Scot.,	5 E W H

SENIORS, ... 14

JUNIOR CLASS.

I.	Edmund Wallen Bill,	New York City,	16 S E
II.	James Buckelew,	Jamesburg, N. J.,	3 S R H
II.	Clarence L. Burger,	Brooklyn, N. Y.,	8 N E
II.	John Stevens Conover,	Princeton, N. J.,	Mr. Conover's
II.	William Darling,	Wilkes Barre, Pa.,	9 W M W H
I.	Janon Fisher,	Baltimore, Md.,	9 S W
II.	Luther Weeks Frost,	Yonkers, N. Y.,	13 N E H
I.	Persifor Frazer Gibson,	Philadelphia, Pa.,	2 E M W H
II.	Wm. Joseph Greene,	Cedar Rapids, Ia.,	15 S W
II.	Charles T. Day Halsey,	Newark, N. J.,	12 N E
II.	John Blanchard Miles,	Peoria, Ill.,	5 S M R H
I.	Frank Heath Speer,	Pittsburg, Pa.,	6 S M R H

JUNIORS, ... 12

†Not fully examined.

SOPHOMORE CLASS.

I.	Alfred Thornton Baker,	Camden, N. J.,	Mr. Conover's
I.	William Ballantyne,	Washington, D. C.,	E, U H
II.	Daniel Bower Banks,	Baltimore, Md.,	14 S E H
I.	Samuel Mills Bevin,	Easthampton, Conn.,	Cook Cottage
II.	William R. Blakemore,	Louisville, Ky.,	10 N W
I.	Joseph Cashman,	Watertown, Mass.,	Mr. Carpenter's
I.	Herbert Hugh Claxton,	Yonkers, N. Y.,	Mrs. Borden's
I.	George Henry Davis,	Peoria, Ill.,	18 S E
I.	Bertric Egbert,	Franklin, Pa.,	6 S R H
II.	Charles E. Griffith,	Lawrence, Kan.,	6 S W
II.	David Elwood Harlan,	Churchville, Md.,	26 N E H
II.	Walter Butler Harris,	Princeton, N. J.,	Mr. Harris'

CORRIGENDA.

Page 28, line 6—For II. †Andrew McNair Coyle, read I. †Andrew McNair Coyle.

" 28, " 9—For I. Wm. H. Gulick, read II. Wm. H. Gulick.

" 28, " 25—For I. Janon Fisher, read II. Janon Fisher.

" 29, " 31—For Francis Enos, read Frank Enos.

" 30, " 14—Daniel C. Smith rooms at Mr. Wolfe's.

" 33, " 5—Read Albert P. Carman, New Jersey.

FRESHMAN CLASS.

II.	†Benjamin Akerman,	Cartersville, Ga.,	4 S E H
II.	Frederick K. Alexander,	Monongahela City, Pa.,	44 & 45 U H
II.	Thomas Francis Bedle,	Jersey City, N. J.,	23 S E H
II.	Francis Ogden Blackwell,	New York City,	3 W M W H
I.	Thomas Jefferson Dolan,	Philadelphia, Pa.,	——
I.	Francis Enos,	Brooklyn, N. Y.,	75 & 76 U H
I.	Jesse G. Falls,	Memphis, Tenn.,	Mrs. Smith's
I.	†Thomas Francis, Jr.,	Washington, D. C.,	31 U H
I.	Harlan Victor Gause,	Wilmington, Del.,	Cook Cottage
I.	David Greene,	Columbus, O.,	1 S R H

II.	Francis Henry,	Princeton, N. J.,	Mr. Henry's
II.	Fred. Wolcott Jackson, Jr.,	Newark, N. J.,	Mrs. Ferguson's
I.	George Pierson Jessup,	Oneida, N. Y.,	19 S W
I.	†William Larimer Jones,	Pittsburg, Pa.,	9 S M R H
I.	Samuel Roseburg Kelly,	Pittsburg, Pa.,	42 U H
I.	Herman Frederic Lee,	Stevensville, Pa.,	7 S R H
II.	Henry Aug. S. Livingood,	Reading, Pa.,	1 S R H
I.	James Gabriel Ludlum,	Pompton, N. J.,	Mr. Carpenter's
I.	Jno. A. Campbell Mason,	Baltimore, Md.,	7 W W H
I.	A. H. Phillips,	Lawrenceville, N. J.,	12 S E H
I.	James Walter Phillips,	Princeton, N. J.,	Mrs. Furman's
II.	Clinton Levering Riggs,	Baltimore, Md.,	7 W M W H
II.	Bolivar Roberts, Jr.,	Salt Lake City, Utah,	Mrs. Dohm's
I.	Daniel C. Smith,	Brooklyn, N. Y.,	——
II.	Thomas Oliphant Speir,	South Orange, N. J.,	6 N W
I.	Philip Hervey Sternbergh,	Reading, Pa.,	79 U H
II.	†R. Burton Tomlinson,	Cedar Rapids, Ia.,	Mrs. Smith's
II.	Lawrence Edgar Van Etten,	Kingston, N. Y.,	7 S R H
II.	David Frederick Walker,	Salt Lake City, Utah,	Mrs. Dohm's
I.	Chauncey N. Waterman,	Winona, Minn.,	Mr. Waible's

FRESHMEN, ... 30

SPECIAL STUDENTS.

NOT CANDIDATES FOR A DEGREE.

George Austen,[1]	Glencoe, Md.,	Mr. Lavake's
John Henry Brickenstein,[1]	Lititz, Pa.,	Mr. Shann's
Lowrie Childs,[2]	Omaha, Neb.,	A, U H
James McIntosh Cox,[1]	Morristown, N. J.,	11 U H
Joseph Harriman,[1]	New York City,	10 S E
James Grafins Rhoads,[1]	Williamsport, Pa.,	41 U H

1. First year of course. 2. Second year.

SUMMARY.

SENIORS,	14
JUNIORS,	12
SOPHOMORES,	24
FRESHMEN,	30
SPECIAL,	6
TOTAL,	86

GENERAL SUMMARY.

FELLOWS,	8
GRADUATE STUDENTS,	54
ACADEMIC STUDENTS,	379
SCIENTIFIC STUDENTS,	86
	527
NAMES REPEATED,	4
	523

CLASSIFICATION BY RESIDENCE OF UNDERGRADUATES.

NEW JERSEY	105	WISCONSIN	3
PENNSYLVANIA	105	INDIANA	2
NEW YORK	83	SOUTH CAROLINA	2
OHIO	36	UTAH	2
KENTUCKY	21	ALABAMA	1
MARYLAND	20	LOUISIANA	1
DISTRICT OF COLUMBIA	15	MICHIGAN	1
ILLINOIS	14	MISSOURI	1
DELAWARE	5	NEBRASKA	1
GEORGIA	5	NEW HAMPSHIRE	1
MASSACHUSETTS	5	OREGON	1
CALIFORNIA	3	RHODE ISLAND	1
COLORADO	3	TENNESSEE	1
CONNECTICUT	3	VERMONT	1
IOWA	3	BULGARIA	1
KANSAS	3	INDIA	1
MINNESOTA	3	SANDWICH ISLANDS	1
NORTH CAROLINA	3	SCOTLAND	1
VIRGINIA	3	WEST INDIES	1
WEST VIRGINIA	3		

ABBREVIATIONS.

N, Nassau Hall.
N E, North Entry of East College.
S E, South Entry of East College.
N W, North Entry of West College.
S W, South Entry of West College.
N R H, North Entry of Reunion Hall.
S R H, South Entry of Reunion Hall.
N M R H, North Middle Entry of Reunion Hall.
S M R H, South Middle Entry of Reunion Hall.
E W H, East Entry of Witherspoon Hall.
W W H, West Entry of Witherspoon Hall.
E M W H, East Middle Entry of Witherspoon Hall.
W M W H, West Middle Entry of Witherspoon Hall.
N E H, North Entry of Edwards Hall.
S E H, South Entry of Edwards Hall.
U H, University Hall.

HONORS AND DEGREES CONFERRED.

DEGREES.

Honorary Degrees conferred June, 1883.

LL.D.—Rev. William M. Taylor, D.D., of New York.
D.D. —Rev. James D. Moffat, President of Washington and Jefferson College.
PH.D.—Prof. John W. Burgess of Columbia College.

Degrees in Course.

Master of Arts	39
Bachelor of Arts	96
Bachelor of Science	6
Civil Engineer	4

HONORS 1882-3

COMMENCEMENT HONORS.

MASTER'S ORATION.

Rodney Janvier, New Jersey.

ORATIONS AT GRADUATION.

The Latin Salutatory.

Henry M. Landis, Pennsylvania.

The English Salutatory and the Classical Oration.

Benjamin W. Mitchell, Pennsylvania.

The Valedictory.

Otto Crouse, New Jersey.

Honorary Orations and Theses.

General or Special Excellence as indicated.

Albert P. Carman, Maryland. *Belles Lettres and Phys. Sciences.*
Robert D. Petty, New Jersey. *Mod. Languages and Literature.*
Andrew W. Wilson, Jr., Pennsylvania. *Political Science.*
John A. Hiestand, Pennsylvania. *Philosophy and Ethics.*
Frank E. Hoskins, Pennsylvania. *Philosophy.*
Aaron Condit Ward, New Jersey. *Natural Science.*
George Edwards, Iowa. *General Excellence.*
George W. Gilmore, New York. *Classics.*
Thomas C. Summerill, New Jersey. *Astronomy and Philosophy.*
Edward Vollrath, Ohio. *Philos. and Phys. Sciences.*
John G. Murdoch, New Jersey. *Philosophy.*
Evan Mohr Landis, Pennsylvania.
John Crawford Life, Pennsylvania.
S. M. Davis, Pennsylvania.
Lucius Allen Lewis, Oregon.
Russell Wellman Moore, New Jersey.
William Kinkead Shelby, Kentucky. *Belles Lettres.*
Hartley T. Updike, New Jersey.
John Lawrence Keller, New Jersey.
Perlee Lowe Rieman, Maryland.
Fred. A. C. Perrine, New Jersey.
Latimer H. Prescott, Utah.
James C. Russell, Pennsylvania.
George Birney Jennison, Michigan.
Howard Hunt Garmany, Georgia.
Fred Newman Rutan, New Jersey.
William Alexander Annin, Missouri.
Edwin Milton Royle, Utah.

FELLOWS.

IN EXPERIMENTAL SCIENCE.

Albert P. Carman, New Jersey.

IN CLASSICAL LITERATURE.

Benjamin W. Mitchell, Pennsylvania.

IN MATHEMATICS.

Henry M. Landis, Pennsylvania.

IN MENTAL SCIENCE.

John G. Murdoch, New Jersey.

IN MODERN LANGUAGES.

Henry A. Towle, New Jersey.

IN HISTORY.

John A. Hodge, Jr., Connecticut.

IN ECONOMIC ELECTRICITY.

Henry Crew, Ohio.

IN BIOLOGY.

Walter M. Rankin, New Jersey.

SENIOR PRIZEMEN.

IN ENGLISH LITERATURE.

T. Ross Paden, Pennsylvania.

IN SCIENCE AND RELIGION.

Claude L. Brodhead, New Jersey.

THE GEORGE POTTS BIBLE PRIZE.

George Edwards, Iowa.
Wm. P. Finney, Maryland.
Charles A. Richmond, New Jersey.

LYNDE PRIZE DEBATE.

John A. Hodge, Jr., Conn., *First Prize.*
Otto Crouse, N. J., *Second Prize.*
Edwin M. Royle, Utah, *Third Prize.*

DEBATERS.

Whig Society.	*Cliosophic Society.*
J. A. Hodge, Jr., Conn.	Otto Crouse, N. J.
J. L. Keller, N. Y.	R. D. Petty, N. J.
S. M. Davis, Pa.	E. M. Royle, Utah.

BAIRD PRIZEMEN.

The Baird Prize.—Edwin M. Royle, Utah.

In Oratory.	John A. Hodge, Jr., Connecticut.
In Delivery.	John L. Keller, New Jersey,
In Poetry.	Robert S. Yard, New Jersey.
	Fred. B. White, New York. *Hon. Mention.*
In Disputation.	Otto Crouse, New Jersey, *First Prize.*
	Robert D. Petty, New Jersey, *Second Prize.*

Baird Competitors, appointed for Excellence in English Composition: (I) A. P. Carman, O. Crouse, J. A. Hodge, Jr., F. E. Hoskins, E. M. Royle, W. K. Shelby, R. S. Yard; (II) C. R. Brodhead, H. G. Bryant, S. M. Davis, G. Edwards, G. W. Gilmore, J. L. Keller, B. W. Mitchell, T. R. Paden, R. D. Petty, L. H. Prescott, F. N. Rutan, W. C. Scott, T. C. Summerill, S. R. Taber, A. W. Wilson, Jr., F. C. Woods.

JUNIOR PRIZEMEN.

Junior First Honor Scholar.

Alfred G. Reeves, New Jersey.

Dickinson Prizeman.

John N. Forman, India.

Maclean Prizeman.

James M. Baldwin, South Carolina.

Junior Orator Medallists.

Leonidas Dennis, New Jersey, *First Medal.*
George M. Harper, Pennsylvania, *Second Medal.*
John Maynard Harlan, Washington, D. C., *Third Medal.*
James M. Baldwin, South Carolina, *Fourth Medal.*

Competing Junior Orators.

Cliosophic Society.	*American Whig Society.*
James M. Baldwin, S. C.,	John Maynard Harlan, Ky.,
Leonidas Dennis, N. J.,	George M. Harper, Pa.,
John C. Murray, N. Y.,	Ferdinand Jelke, Jr., O.,
George C. Woodhull, Wis.,	Starling L. Marshall, Ky.

SOPHOMORE PRIZEMAN.

Class of 1861 Prize.

Wm. Brown McIlvaine, Illinois.

FRESHMAN PRIZEMAN.

Freshman First Honor Prize.

Matthew C. Fleming, Ohio.

JUNIOR HONORMEN.

Name.	*Rank*	*Name.*	*Rank*
A. G. Reeves, N. J., . .	i.	W. M. Langdon, N. Y., .	xii.
R. K. Prentice, N. Y., .	ii.	T. T. McCormick, N. Y.,	xiv.
A. B. Hobbs, D. C., . .	iii.	A. F. Lewis, Ky., . . .	xv.
J. M. Baldwin, S. C., .	iv.	A. W. Olcott, Mo., . . .	xvi.
A. H. Travis, N. Y., . .	v.	G. M. Harper, Pa., . . .	xvii.
H. B. Gayley, Md., . . .	vi.	A. S. Rowland, N. J., .	xviii.
G. P. Butler, N. Y., . .	vii.	Alvin Blackwell, N. J., .	xix.
T. M. Nichols, Pa., . . .	viii.	A. G. Todd, N. J., . . .	xx.
C. S. Hamilton, O., . . .	ix.	Atlee Pomerene, O., . .	xxi.
H. N. Paul, Pa., ...	x.	Da Costa Pomerene, O., .	xxi.
William Chester, D. C., .	xi.	J. N. Forman, India, . .	xxiii.
N. L. Johnson, Pa., . . .	xii.		

JUNIOR HONORMAN, SCHOOL OF SCIENCE.

H. C. Munger, N. J.

SOPHOMORE HONORMEN.

Name.	*Rank*	*School.*
W. B. McIlvaine, Ill., .	i.	Peoria High School, Peoria, Ill.
C. W. McIlvaine, Vt., . .	ii.	Franklin Co. (Vt.) Gram. School.
J. W. Bayard, Pa., . . .	iii.	Germantown (Pa.) Academy.
R. P. Wilder, N. J., . .	iv.	H. N. Van Dyke. Williston Sem.
C. F. McClumpha, N. Y.,	v.	Albany High Sch., J. E. Bradley.
S. N. Knapp, N. Y., . .	vi.	Peekskill Acad. C. J. Wright.
J. H. Cleveland, Ky., . .	vii.	Augusta (Ky.) Academy.
Jonathan Sturges, N. Y.,	vii.	A. H. Cutler's Coll. Sch., N. Y.
J. E. Johnson, Jr., N. Y.,	ix.	Dr. Chapin's Coll. Sch., N. Y.
Sherrerd Depue, N. J., .	x.	Newark Acad. S. A. Farrand.
R. S. Lawrence, Kan., .	xi.	Rev. D. Cook, Merryall, Pa.
H. D. Thompson, N. Y.,	xi.	Dr. Holbrook's School, Sing Sing, N. Y.
R. E. Carter, L. I., . . .	xiii.	Huntington High School, L. I.
W. H. Lynch, Md., . .	xiii.	Rugby Acad., Wilmington, Del.
R. H. Beattie, Jr., N. Y.,	xv.	Rev. R. H. Beattie, D.D., N. Y.
J. E. Hayes, N. J., . . .	xvi.	Prof. S. R. Winans.
Duncan Edwards, N. Y.,	xvii.	Brooklyn Coll. & Polytechn. Inst.
F. S. Woodruff, N. J., .	xviii.	Dr. J. F. Pingry's Sch., Elizabeth, N. J.
G. E. Swartz, Pa., . . .	xix.	Profs. Kelso and Patton.
H. G. Myers, N. Y., . .	xx.	Albany High Sch., Albany, N. Y.
J. R. Hughes, Pa., . . .	xxi.	Bellefonte Acad. Pa., Rev. J. P. Hughes.
A. B. Sherwood, N. Y., .	xxii.	Rev. Geo. D. Silliman.
C. R. Wylie, Pa., ...	xxiii.	"The Hill," Pottstown, Pa.

SOPHOMORE HONORMEN, SCHOOL OF SCIENCE.

J. B. Miles, Ill., ...	i.	Peoria High School, Ill.
Janon Fisher, Md., . .	ii.	Epis. High School of Virginia.
C. L. Burger, N. Y., . .	iii.	Brooklyn Coll. & Polytech. Inst.

FRESHMAN HONORMEN.

Name.	*Rank*	*School.*
M. C. Fleming, O. . .	i.	Wooster Univ. & Xenia High Sch., O.
G. B. Roddy, Pa. . .	ii.	New Bloomfield Academy, Pa.
R. C. Sheldon, N. Y.,	iii.	Glidden's School, Jamestown, N. Y.
G. A. T. Eddy, N. Y.,	iv.	State Normal Sch., Brockport, N. Y.
Wilson Farrand, N. J.	v.	Newark Acad., S. A. Farrand, Prin.
W. A. Calhoun, Pa., .	vi.	Jefferson Acad., Canonsburg, Pa.
J. C. Mathis, Ill.,. . .	vii.	High School, Springfield., Ill.
C. R. Erdman, N. Y.,	viii.	Glidden's School, Jamestown, N. Y.
A. G. Cameron, N. J.,	ix.	Prof. Cameron.
J. D. Baucus, N. Y.,	x.	Schuylerville High School, N. Y.
Harry Hillard, N. Y.,	xi.	Morristown Academy. Prof. West.
John Calhoun, Pa.,. .	xii.	Jefferson Acad., Canonsburg, Pa.
William Rankin, N. J.	xiii.	Newark Acad., S. A. Farrand, Prin.
H. C. Elsing, Ill., . .	xiv.	Lake Forest Acad., Ill.
Taylor Reed, Pa., . .	xv.	Lewistown Acad., Pa.
Fred. Evans, Jr., Pa.,	xvi.	Franklin High School, Pa.
J. W. Harding, Pa., .	xvii.	Wyoming Sem., Kingston, Pa.
W. E. Strater, Ky.,. .	xviii.	Prof. J. W. Chenault, Louisville, Ky.
J. W. McKecknie, O.,.	xix.	Wilmington Col., Wilmington, O.

FRESHMAN HONORMEN, SCHOOL OF SCIENCE.

E. H. Pershing, Pa.,. .	i.	High School, Pottsville, Pa.
H. H. Claxton, N. Y. .	ii.	H. N. Van Dyke.
W. S. Vanneman, N. J.	iii.	Collegiate Institute, Salem, N. J.

ACADEMIC DEPARTMENT.

ADMISSION.

ENTRANCE EXAMINATIONS.

Examinations for admission will be both oral and written. The first examination will commence in Princeton on Thursday, June 19th, at 11 A. M., and will continue through the forenoon of Friday. The second will commence on Tuesday, September 9th, at 11 A. M., and continue through the forenoon of Wednesday. *Attendance is required at the beginning of the examination.*

Simultaneously with the June entrance examinations in Princeton, examinations will also be held in the following cities, viz.: Cincinnati, Louisville, Chicago, St. Louis, Denver and San Francisco; and elsewhere if necessary. The precise places in which the examinations are to be held can be learned by application to the President.

Examinations at other times and places than those specified are inconvenient, and often impracticable, and applicants for admission at other than the regular days are required to pay $10 into the treasury.

SUBJECTS.

Candidates for admission to the Freshman Class are examined in the following books and subjects. It is recommended that the Candidates be prepared for examination on the requirements as specified; but equivalents will be accepted.

English.

English Grammar—Whitney or Reed and Kellogg (Higher Lessons); Modern Geography—Guyot's Grammar-School Geog-

raphy; U. S. History—Scott's or Anderson's Grammar-School History; Rhetoric—Subject of sentences in Hart's or Kellogg's Rhetoric.

The writing of a short essay is required as a part of the examination: the theme for the examination of 1884 will be taken from U. S. history.

The attention of Preparatory Schools is called to the need of a more thorough study of elementary English.

Latin.

Latin Grammar, including Prosody; Cæsar (five books of the Commentaries); Sallust (Catiline or Jugurtha); Virgil (six books of Æneid); Cicero's Select Orations (six); Arnold's Latin Prose Composition (twelve chapters). Geography of Ancient Italy.

Greek.

Greek Grammar, including Prosody; Xenophon (four books of the Anabasis), or Greek Reader (Goodwin's) 111 pages; Homer (the first two books of the Iliad, except the Catalogue of the Ships); Greek Composition (Jones' Exercises in Greek Prose, or an equivalent—writing with the accents required); Geography of Ancient Greece and Asia Minor. Goodwin's Grammar is preferred. Special stress is laid upon a thorough knowledge of the noun and verb inflections. Candidates will do well to read an additional book of the Iliad, where this can be done without sacrifice of thoroughness in the formal requisitions. Some experience in giving written answers to set questions is advantageous.

The Continental pronunciation of the vowels and diphthongs is preferred in both Latin and Greek.

Mathematics.

Arithmetic, and the Metric System; Algebra, through Quadratic Equations involving two unknown quantities—including Radicals, and Fractional and Negative Exponents; Geometry, the First and Second Books of Euclid, or an equivalent—

that is, the Propositions in other text-books relating to the Straight Line and Rectilinear figures, not involving Ratio and Proportion.

Other Requirements.

Candidates for admission to any class higher than the Freshman are examined in the previous studies of the Class which they wish to enter, or their equivalents, as published in the last annual Catalogue. Applicants for admission to the Sophomore Class are also examined in the preparatory studies. Applicants for admission to the Junior or Senior Class, *coming from another College*, are examined only in the studies of the year preceding that which they wish to enter. While it is important that the applicants should have studied French, Elementary Anatomy, and Physiology, an examination in these studies is not required.

No person is admitted to the College as a candidate for the Degree of Bachelor of Arts, after the beginning of the first term of the Senior year.

In exceptional cases, undergraduate students, not members of either of the four regular classes nor candidates for a degree, are admitted to the privileges of the College, and allowed to take special courses, selected under the direction of the Faculty, in such a manner as to secure full and profitable employment of their time. Such special students undergo a preliminary examination sufficient to ascertain their preparation for the course proposed, and are subject to the same regulations and discipline, and to the same examinations in the studies pursued, as other undergraduates. On completing their course they receive certificates of proficiency.

All candidates for admission to any Class, or as special students, must bring with them testimonials of moral character and attainments, preferably from their last instructors; and if the candidate has been a member of another College or University, he must produce a certificate from its President or Faculty that he is free from censure in that institution.

No candidate is admitted into the College without examination and a vote of the Faculty.

Immediately after the opening of the College the entering students meet according to announcement for the registration of their names and subscription to the following pledge, required by the Board of Trustees:

We, the undersigned, do individually for ourselves promise, without any mental reservation, that we will have no connection whatever with any secret society, nor be present at the meetings of any secret society in this or any other College so long as we are members of the College of New Jersey; it being understood that this promise has no reference to the American Whig and Cliosophic Societies. We also declare that we regard ourselves bound to keep this promise, and on no account whatever to violate it.

COURSE OF STUDY.

The course for the degree of Bachelor of Arts extends over four Academical years, and besides Philosophy, Literature and the Classics, embraces extensive instruction in the Sciences. It includes two classes of studies, the required and the elective, attendance upon which is obligatory; there are also optional courses, with voluntary attendance, in connection with some of the departments of study.

All the studies of Freshman and Sophomore years are required, and are of a fundamental nature, such as Latin, Greek, Mathematics, Natural History, Rhetoric and Modern Languages. It is assumed that these are indispensable parts of a liberal education, in which every candidate for the Bachelor's degree should be well grounded.

From the opening of Junior year onward, the student, by availing himself of the elective system, may to a certain extent shape his course with reference to his individual tastes, or the profession which he has in view. The following are the Junior electives, of which the student selects three: Mathematics, Greek, Latin, German with French, or with Anglo-Saxon, and History. The required studies of the Junior year are Psychology, Logic, Physics, Geology, English Literature, and Oratory.

In the Senior year the range of electives is wider. Each student selects five of the following subjects: History of Phi-

losophy, Political Science, Science and Religion, History, Latin, Greek, French and German, Mathematics, Practical Astronomy, Physics, Chemistry, Laboratory Chemistry, Physical Geography, Biology or Palæontology, and Histology. The required studies of the Senior year are Ethics, Metaphysics, Chemistry, Astronomy, English Literature, Science and Religion, and Oratory.

Students are required to choose their electives for the year at the beginning of the first term, and no changes will be allowed after the close of the second week except for special reasons, approved by the Faculty.

Optional courses, so ordered as not to conflict with the time allotted to the regular instruction of the course, are offered in connection with several departments. These courses are designed to benefit those who wish to extend their reading or study in certain branches; they amplify the subjects taken up in the regular course, and in some cases conclude with a special examination upon which is based a certificate of proficiency.

The Freshman class recites in divisions according to rank in order to proportion the work to individual ability; rapid progress can thus be made by those who have special aptitudes for certain studies. In awarding the Bachelor's degree and assigning the final rank, the student's work for the whole four years is taken into account.

The branches taught may be arranged in three groups:— Philosophy, Language and Literature, Mathematics and Natural Science.

The following is a statement of the various courses of instruction:

DEPARTMENT OF PHILOSOPHY.*

Mrs. Robert L. Stuart, of New York, has recently given to the College one hundred and fifty thousand dollars, to maintain professorships in this department, embracing Ethics, Logic,

* In 1884–5 the Philosophic Department will be more thoroughly organized. A chair of Ethics will be added and there will be Graduate courses in most of the branches of the Department.

Metaphysics, the History of Philosophy and Psychology. She gives this in memory of her late husband, Mr. Robert L. Stuart, and of his brother, the late Mr. Alexander Stuart.

Besides the undergraduate courses given below, the Department also embraces the courses on Contemporary Philosophy and on Plato mentioned in connection with the graduate courses.

Psychology.

THE PRESIDENT.

The whole Junior Class are required to take the President's course in Psychology, in which he mixes lectures and recitations. He begins, as an introduction to the whole department, with explaining the Method to be pursued, which is Induction, with self-consciousness as the agent of observation. In the first term he uses a text-book prepared by himself, on "The Senses External and Internal." In a course of lectures running through the year he unfolds the nature, the operations and laws of the Faculties of the Mind, I. THE COGNITIVE POWERS: 1. The Simple Cognitive or Presentative: Sense Perception and Self-Consciousness; 2. The Reproductive or Representative: Retention; Phantasy; Association; the Recognitive (Memory); Composition (Imagination); Symbolic (Language). 3. The Comparative, discovering Relations of Identity, Comprehension (whole and parts), Resemblance, Space, Time, Quantity, Active Property, Cause and Effect. II. THE MOTIVE POWERS: 1. The Conscience; 2. The Emotions; 3. The Will.

Physiological Psychology.

THE PRESIDENT, PROFESSORS OSBORN AND SCOTT.

The President begins this course, which runs through the first term and is attended by the Juniors, by showing in opposition to materialism that we have a means of knowing mind by self-consciousness just as we have a means of knowing matter by the senses, and that the two possess essentially different properties, while they are closely connected with each other.

Professor Osborn continues with lectures upon the physical structure of the nervous system, including the histology of the nerves and nerve cells, together with an account of the sense organs, of the principal nerve tracts in the spinal cord and brain, the larger internal divisions and the convolutions of the brain. Professor Scott concludes the course with a series of lectures upon the physiology of the nervous system including the general problems of the origin and transmission of nervous force and the functions of the peripheral nerves, the spinal cord and the brain. Special attention is given to the localization of function in the cerebral cortex. Simple anatomical demonstrations accompany the course.

Metaphysics.

THE PRESIDENT AND PROFESSOR PATTON.

This is taught to the whole Senior Class for one hour a week during the first term. The President begins the course by defining Metaphysics as the Science of First Truths; by classifying these as Primitive Cognitions, Primitive Beliefs and Primitive Judgments; by giving their Tests, Self-evidence, Necessity and Universality; by explaining that they are first singular perceptions which may be generalized (it may be incorrectly,) into axioms. The subject is then taken up by Professor Patton of the Theological Seminary who presents an outline of the theistic theory of the universe, and the metaphysical principles that underlie it. The course will embrace discussions on the genesis of the idea of God, the history of the theistic proof, the doctrine of causation, the present state of the teleological argument, the metaphysical bases of the moral argument, and the theistic significance of the idea of the Infinite.

History of Philosophy.

THE PRESIDENT.

This is an Elective Course in the Senior year conducted by the President. It discusses: I. The ancient Greek and Latin Philosophies, including the Pre-Socratic Schools; Socrates, Plato,

and Aristotle, and the Academic, Peripatetic, Epicurean, and Stoic Sects. Mayor's "Ancient Philosophy from Thales to Cicero" is used as a text-book. II. Modern Philosophy from Bacon to the present time is taught by lectures with recitations, and embraces Bacon, Descartes, Locke, Leibnitz, Berkeley, Hume, Reid, Kant, Hamilton, and others.

Science and Religion.

PROFESSOR SHIELDS.

The Department of the Harmony of Science and Religion extends through the second and third terms of the Senior year, and includes both a required and an elective course. The required course embraces (1) the harmony of the physical sciences with natural theology; the Divine Being and attributes as illustrated by astronomy, geology and anthropology; (2) the harmony of the mental sciences with natural religion; the doctrine of a future life, divine government and probation as reconcilable with psychical, ethical and metaphysical theories; (3) the harmony of science with revealed religion; the miraculous, prophetical, historical, and philosophical evidences of Christianity, and its consistency with the whole system of the physical and psychical sciences.

The elective course embraces the study of the sciences as connected with revealed religion; their history, classification, and methods; normal and existing relations of reason and revelation; emerging religious controversies in the different sciences, the problem of their adjustment, and the issuing philosophical system.

While the required course aims to vindicate Christian evidences as usually taught in Colleges, the elective course may also have the incidental effect of promoting that sound, ultimate philosophy which results from the harmony of science and revelation and looks to the gradual purification and completion of human knowledge.

The instruction is given chiefly by lectures, with the occasional use of Butler's Analogy as a text-book, and in a part of

the course, monthly reviews and extemporaneous essays preclude some of the disadvantages of oral recitations and a final examination.

The Dickinson Prize and the Science and Religion Prize are offered in this department.

Logic and Ethics.

PROFESSOR ORMOND.

1. Logic.—Required in Junior year. (*a.*) Formal Logic—comprising the Laws of Discursive Thought in Notions, Judgments and Reasonings. The Syllogism and other forms of reasoning will be discussed. Text-book, McCosh's Manual of Logic. Text-book instruction will be accompanied with lectures and practical exercises. (*b.*) Applied Logic—Treating of Logical Method, Induction, Deduction, Demonstration, the canons of investigation and kindred topics. Taught by lecture and practical exercises with references for collateral reading.

2. Ethics.—Required in Senior year. (*a.*) Theoretical Ethics—historically and scientifically treated. Some of the topics discussed are the Will, the Conscience, the Moral Motive and the Moral End, the Nature of Virtue and its relation to Experience. Theoretical Ethics will occupy two hours a week during the first term. (*b.*) Practical Ethics; in which the application of principles to various spheres of action will be considered. Practical Ethics will occupy one hour a week during the second term. Taught by lecture, recitation and collateral reading.

Philosophy of History and Political Science.

PROFESSOR SLOANE.

I. *Sophomore Class.* One exercise a week throughout the year, required. Outlines of Universal History. Freeman's General Sketch of History is used as a text-book. Lectures, narratives and discussions are introduced as occasion requires.

II. *Junior Class.* Two exercises a week throughout the year, elective. Lectures and Recitations on Transitional Epochs

of History, with special reference to the Science of Politics and the Progress of Civilization.

III. *Senior Class.* One exercise a week throughout the year, elective. Lectures and Recitations on, 1. The rise and growth of European Colonies in North America and the causes of the War of Independence. 2. Comparative politics from the standpoint of American institutions.

IV. *Graduate Course.* One exercise a week throughout the first and second terms. Historical methods and historical systems.

N. B.—During the present Academic year Course II. is the only one to be given.

Jurisprudence and Political Economy.

PROFESSOR JOHNSTON.

Under this head instruction will be given in the Second and Third Terms in the Philosophy of Public Law, the Production and Distribution of National Wealth, and such topics as Rent, Wages and Exchange.

SCHOOL OF ART.

The Trustees of the late Frederick Marquand, of New York, have given $60,000 towards the endowment of the School of Art.

History of Art.

PROFESSORS MARQUAND AND PRIME.

This comprises a course of lectures on the History of Art by Allan Marquand, Ph.D. A course on Architecture will be delivered first, and will embrace Egyptian, Moorish, Romanesque and Gothic buildings, which will be selected and studied from an historical, æsthetic and structural point of view. (This course is at present deferred in consequence of the illness of Professor Marquand, contracted while making researches in the service of the college.) A course of lectures on Art will also be delivered to the College in the winter by W. C. Prime, LL.D., who has been elected one of the Professors of the College.

DEPARTMENT OF LANGUAGE AND LITERATURE.

Greek.

PROFESSORS CAMERON, ORRIS AND WINANS.

Freshman Year.

The Freshman Class is divided into four sections, each of which receives five hours of instruction in Greek every week during the first and second sessions, and four hours a week during the third.

POETRY.—Homer: The Iliad; Books XVI., XVIII., XXII. Epic Forms and Syntax; Prosody and Scanning; The Homeric Question; Antiquities and Mythology. Two exercises a week during the first and second terms, and one during the third. Professor Cameron.

PROSE.—The Greek Historians: varied selections from Herodotus, Thucydides, and Xenophon, made with an aim to illustrate the best style of the author, and likewise, as far as practicable, to present thus, from the original sources, the history of the most interesting and important epochs,—the rise of the Persian Monarchy, the Persian Wars, Athens under Pericles, opening and closing scenes in the Peloponnesian War, the downfall of Athens. This is followed by a short course of Outlines of Greek History, in English, intended to review and supplement the previous course and to furnish a comprehensive view of the whole subject.

Xenophon's Symposium is read in the third session, accompanied by talks on Greek domestic life.

Also, throughout the year, review of Greek Grammar, with elucidations; Goodwin's doctrine of the syntax of the verb; review of elementary Greek Prose Composition, with written exercises; followed by advanced Greek Prose (Sidgwick's). Three exercises a week. Professor Winans.

NOTE.—As the authors and the amount read during the Freshman year may vary from year to year, the following is indicated as a *minimum* for applicants for Sophomore standing; Homer, Books XVI., XVIII., XXII. Greek Historians, 100 pages, selected at pleasure; one-half of this, however, to be from Herodotus or Thucydides.

Sophomore Year.

The Sophomore Class is divided into sections, each of which receives four hours of instruction in Greek every week throughout the year.

GREEK ORATORY.—The Olynthiacs and Philippics of Demosthenes; Demosthenes and the Political Condition of Greece in his time; Selections from the Rhetoric of Aristotle; Greek Prose Composition on the basis of the text of Demosthenes, including analyses in Greek of the Olynthiacs and Philippics; Dictations on Greek Lexicology, stating and explaining the laws pertaining to the formation, derivation and definition of the words of the language. The first half of the Class recites in two subdivisions, each subdivision four hours a week during the first term; the second half in two subdivisions, each four hours a week during the second and third terms. Professor Orris.

POETRY.—Euripides, the Medea. The Origin of Tragedy; Analysis of the Medea; Life of Euripides. The second half of the class recites two hours a week during the first term, and the first half two hours a week during the second and third terms. Professor Cameron.

PROSE.—Xenophon: the Memorabilia (selections); the times of Socrates; the Socratic Ethics. In the third session, selections from Lucian; society, religion, and literature of the Second Century, A. D. The second half of the class recites two hours a week during the first term, and the first half two hours a week during the second and third terms. Professor Winans.

Junior Year.

ELECTIVE GREEK.—Attic Tragedy: Æschylus—Selected Dramas. Lectures on the Works of Æschylus, and on the Origin, Character and Relations to Modern Literature of the Attic Drama. Two hours a week for half the year. Professor Orris.

Attic Comedy: Aristophanes—Selected Plays, with Prolegomena. The relations of Comedy to Tragedy; Aristophanes' criticism of his rivals and of the tragedians; attitude of Aristophanes toward the philosophical, social, and political

movements of his time. Comic Metres. Two hours a week for half the year. Professor Winans.

OPTIONAL.—Lyric Poetry, or advanced Greek Prose Composition. Professor Orris.

Senior Year.

ELECTIVE GREEK.—In the Senior year there are two independent elective Greek courses, each course occupying one hour a week throughout the year.

A. TRAGEDY.—Sophocles: The Œdipus Tyrannus. Criticism of the Play, the Plot, the Significance of the Tragedy. Description of the Greek theatre. Lectures on the Physical Geography of Greece as affecting the character and language of the people; the Origin of the Greek alphabet; the characteristics of the Greek language; Rise and character of Greek literature; Epic poetry; Lyric poetry; History; Tragedy; Comedy; Oratory; Philosophy; Greek Antiquities; Manners and Customs; Remains of Cities and Buildings. Professor Cameron.

B. GREEK PHILOSOPHY.—Plato: Selected Dialogues. Lectures on the Philosophy of Plato; on Greek Literature and Philology; on the theories of the Origin of Language, and on the causes which underlie and determine Dialectic Varieties. Professor Orris.

OPTIONAL.—Theocritus. with a Review of his Relations to subsequent Poetry. Professor Orris.

Latin.

PROFESSOR PACKARD, PROFESSOR WEST AND MR. MOORE.

Instruction given in the Department of Latin Language and Literature and Science of Language, involves,

First—The constant training of classes in the Etymology and Syntax of the language, and in the power to translate it accurately and fluently into idiomatic English.

Second—Instruction in Latin Prose Composition. The object here aimed at is not facility in writing Latin as a mere accomplishment, but rather the acquisition of a power to translate at sight any ordinary Latin into fluent literary English, and also to think easily in the Latin order of thought.

In the Freshman year written exercises in connection with some standard text-book form the basis of instruction. These exercises are always minutely examined in order to leave no errors uncorrected. Practice in extemporaneous composition both oral and written, is continually attempted, on as extensive a scale as the student's grammatical knowledge permits.

In the Sophomore year the instruction proceeds to a higher plane in two ways;—first, by an examination and treatment of the Period in all its forms and with all its leading dependents; —second, by an examination of the more obvious laws of style, especially in the historical, oratorical and epistolary varieties. In connection with this written and oral practice, with regular recitation, is insisted upon. Thematic composition, in its higher forms, is reserved for later optional study.

Third—The reading and interpretation of particular authors, whether literary or historical, or both combined. This implies, as collateral branches of study, the History of Roman Literature and the Archæology of Roman Life, social and political. Roman History is studied in its three leading periods; first, in connection with portions of Livy's Histories, the early history down to the times of the Gracchi; second, in connection with Cicero's Letters, the period from the Gracchi to the Empire; and, third, in connection with Juvenal's Satires and Pliny's Letters, the earlier Empire, especially its moral and religious aspects in contrast with Christian Truth and Christian Life.

The exercises with the two lower classes are chiefly recitations, accompanied, or rather interspersed with constant communication of collateral illustrative instruction suggested by the text-book, calculated to quicken and broaden the interest of the student; with care, however, not to infringe upon the frequency and thoroughness of the recitations required of the student. Occasional lectures of a more formal character are introduced in the Sophomore year. These treat, in connection with Cicero's Letters, the representative characters and historical scenes and topics there found; and in connection with Horace, the History of Literature down to his time, his contemporaries, the introduction and influence of Greek, especially Alexandrian literature at Rome, and his own characteristics as to topics, style,

views of life, etc. In reading Terence the method pursued is the following:

1st. Translation as close to literary English as the *vis comica* of Terence, both in style and sentiment, will permit.

2d. Practice to acquire ease in reading the Terentian metres, so as to perceive their dramatic, and high linguistic value; especially as bearing on the pronunciation of colloquial Latin.

3d. An inquiry into the poet's obligations to Plautus and the Greek comedians.

4th. A careful examination of all obscure, technical, synonymous, and unusual words or phrases.

5th. The reading in review of large portions of the comedy, as well as translation at first sight in advance work.

In the Junior year lectures are more frequent; in connection with Juvenal and Pliny, treating of the other sources of our more intimate knowledge of the social and moral condition of the Empire in Italy and the Provinces; and, in connection with such of Cicero's rhetorical, ethical, or religious treatises as are read, treating of literary life and training at Rome, the sources and character of Roman Philosophy, and the Religion of Rome. In the Senior year lectures occupy about one-third of the time, being in part illustrative of Lucretius, but chiefly upon the Science of Language, its General Principles; Physiology of Speech; Phonetic Laws; Formation of Words; History of Inflections; Comparative Laws of Syntax.

The authors used in the order of the curriculum are Livy; Horace's Odes; Virgil, Æneid (latter half); Selected Letters of Cicero; Terence; Horace's Satires and Epistles; Juvenal's Satires; Selected Letters of Pliny; Suetonius; Plautus; Cicero's Treatises (De Oratore, De Natura Deorum, De Fato, etc., varying from year to year); Lucretius, De Rerum Natura; Bruns, Fontes Juris Romanæ, with use of Corpus Inscriptionum Latinarum, and Ritschl, Priscæ Latinitatis Monumenta; Selections from Seneca's Moral Epistles; also from Tertullian and St. Augustine. Early sources of Roman Law.

The instructors suggest questions for special investigation, and designate volumes and parts of volumes, illustrative of the

author or period under study, to be read in private by the class during the term, upon which questions are put in examination papers, eliciting extended written answers.

On two evenings of each week such students as wish, meet with Professor Packard for the study of some Latin work collateral with the class-room exercises. The Sources of Roman Law constitutes the Graduate course for the present year.

English Literature.

PROFESSOR MURRAY.

The study of English Literature is required during the Junior and Senior years, and one hour a week is occupied with lectures and recitations.

Junior Year.

The course begins with lectures on Literature in England before Chaucer. During the first term, lectures are also given on Chaucer, Langland, and Spenser. In addition to the lectures, some of Chaucer's poems are read in the class-room; and Ward's English Poets (Vol. I.) may be used as a text-book.

In the second and third terms, lectures are given on the English Drama before Shakespeare, Shakespeare, and Ben Jonson. In addition to this, plays of Shakespeare are studied in the class-room, the plays selected for study this year being the *Mid-Summer Night's Dream* and *As You Like It.* The study of the Historical Development of the English Language is carried on as a parallel course, the text-book of Professor Lounsbury being in use.

Senior Year.

The Senior Year in this Department is occupied wholly with the study of Literature. In the first term the authors discussed are Bacon, Milton—Poetry and Prose, Sir Thomas Browne and Dryden. During the second and third terms lectures are given on the principal writers of the reign of Queen Anne, and of the Literary Restoration; including for this year some on writers of the Victorian Period. In addition to the lectures, plays of

Shakespeare are critically examined by the class—the plays selected for the year being *Macbeth* and *Hamlet*.

An optional class is formed during the second term for reading authors not treated in the class-room. Essays are also required from both the Junior and Senior classes, in which literary subjects chiefly are discussed.

For the year 1884-5 a graduate course will be offered, comprising lectures on the following subjects:

1. Comparative Literature.
2. Dramatic Literature.
(*a.*) The Plays of Marlowe.
(*b.*) Shakespeare's Historical Plays.
(*c.*) The Comedies of Ben. Jonson.
3. American Literature.

Rhetoric and English Language.

PROFESSOR HUNT.

Freshman Year.

The elements of Rhetoric are studied as embraced in the following subjects: Diction, Sentences, Figures, Laws and Processes of Discourse, Poetry and Versification. This instruction is given by text-book and lecture. The historical study of English Words is also pursued. Essay writing is an essential part of the course, and is continued through the year.

Sophomore Year.

The study of Rhetoric is continued by lecture and text-book in the discussion of its leading principles. The study of the English Language is pursued by text-book and lecture. This latter course embraces such topics as the Study of Words, their poetic, historical and moral character; their rise and decline; their distinctions and practical uses; English spelling and pronunciation; English etymology and affixes, with a brief historical survey of the origin and progress of the language. English composition is continued through the year.

Junior Year.

The study of Anglo-Saxon as an elective branch is begun. On the basis of March's text-books the student is drilled in the forms and principles of grammar, and taught to read with ease the best prose and poetry of First English. In connection with this grammatical and textual study, instruction is given by lecture on a large variety of subjects—philological and historical—rightfully included in such a course. The students are also encouraged to private reading on any of the topics presented in the class-room.

Oratory.

PROFESSOR RAYMOND.

Freshman Year.

First Term. Weekly lectures and drill in Elocution, explaining the meanings and teaching the methods of Gesture and Vocal Emphasis, with Readings and Declamations required from all the class. Text book, Raymond's Orator's Manual.

Sophomore Year.

Exercises by divisions of the class made according to degrees of proficiency. Two private Rehearsals of Declamations, and one written Oration required from all. Optional instruction in Vocal Culture.

Junior Year.

Oratorical Composition and the Analysis and Illustration of Themes, taught by lecture and private criticism. One written Oration and two Rehearsals in Delivery required from all. Optional Rehearsals; Exercises in Vocal Culture; Lectures (begun the second term) on Poetry as a Representative Art.

Senior Year.

Course of the Junior year continued. Two written Orations; Private Criticism and Rehearsals; and Public Speaking before the whole college, with prizes in Oratory, Delivery, Poetry and Dis-

putation (See "Prizes and Competitive Scholarships"). Between fifteen and twenty of the best writers and speakers among the highest honor men are assigned parts at commencement. Optional Rehearsals; Exercises in Vocal Culture; Lectures on the Principles of Esthetic Criticism, with illustrations from the different arts.

Exercises in English Composition.

These are corrected, by the Professors either of English Literature, Rhetoric or Oratory, and are required as follows, viz.: Freshman year, five or six Essays; Sophomore year, five or six Essays and one Oration; Junior year, five Essays and one Oration; Senior year, two Essays and two Orations. In every year of the course several prizes or honorary appointments are given for excellence in essay writing and in public address, either by the College, or by the Cliosophic or American Whig Societies, acting through committees appointed from their own members in the Faculty. (See heading "Fellowships, Prizes, Scholarships.")

Modern Languages and Literature.

PROFESSOR KARGÉ.

This department comprises the study of the French and German languages. The former begins as a required study in the third term of the Freshman and continues as such throughout the Sophomore year. The number of hours a week devoted to class instruction is two, and to make it more effective, recitations are conducted in divisions of thirty students each. For a better apprehension of the thought as well as greater facility in the use of the language, oral and written recitations alternate.

With the close of the Sophomore year, students are required to pass a final examination which embraces the essential parts of descriptive grammar, special stress being laid on a thorough knowledge of the verb and its construction,—besides fluency in rendering ordinary French into English at sight.

In the Junior year, Modern Languages are an elective study. The student who elects this branch continues, for two hours a week during the first term, the French course, which consists in reviewing grammar and in reading Racine's "Athalie," in order to acquaint him with the elegancies of the language, and to give him an incentive to independent study.

At the close of the first term the final examination in French is passed, and the German language takes its time and place.

The course in German embraces the acquisition of the preliminary rules of grammar, pronunciation, written exercises and translation. The third term is devoted to reviewing the work done in German during the previous term.

Modern Languages continue to be elective in the Senior year, either French or German (but not both) may be chosen by the student provided he is in possession of the requisite preliminary knowledge of the language he chooses. The First Term and half of the Second are exclusively devoted to a critical reading of dramas from the works of eminent writers, such as Corneille, Racine, Molière, Lessing, Schiller and Goethe.

The students having obtained an appreciation of the merits of these authors, a course of lectures on the history and literature of these languages is delivered, embracing the salient points of their growth, development, and the influence they exerted upon modern civilization.

Professor Kargé has the exclusive charge of the three upper classes, while in the Freshman Class, where the study of French begins in the middle of the second term, he divides the instruction with his assistant.

DEPARTMENT OF MATHEMATICS AND NATURAL SCIENCE.

Mathematics.

PROFESSOR DUFFIELD, PROFESSOR ROCKWOOD, DR. HALSTED AND MR. FINE.

In the Freshman year there are two exercises a week in Algebra during the second term, and one a week during the

third term, under Professor Rockwood. In Geometry there are three exercises a week during the first term and two during the second term, and three a week in Mensuration during the third term, under Mr. Fine. The text-book in Algebra is Wells' University Algebra. Euclid is used as the Text-book in Geometry both because of its historical associations and its decided superiority for the purpose of mental discipline to any modern Text-book. The first six and the eleventh books of Euclid are supplemented by a course in Spherical Geometry. Since a thorough knowledge of Geometry and familiarity with its more important Propositions can only be obtained by extended practice in the demonstration of Theorems and Problems not contained in the Text-book, this exercise occupies a prominent place in our course of instruction. The Text-book in Mensuration is Halsted's Treatise on Metrical Geometry, in which the principles of the Science are discussed, the Rules and Formulas demonstrated and numerous examples given for practice—the data expressed in terms of the Metric System.

The Sophomore Class has three exercises a week throughout the year in Mathematics, under Professor Duffield. For the first term the studies are Plane Trigonometry with its application to the Mensuration of Heights and Distances, Analytical Trigonometry, and Navigation; for the second term, Surveying, including Levelling and Laying out Railway Curves, and Spherical Trigonometry; for the third term, Analytical Geometry and the elements of the Differential Calculus.

In the Junior Year, Mathematics is an elective study. The class have two exercises a week throughout the year under Professor Duffield. For the first and second term the studies are Analytical Geometry and the Differential Calculus; for the third term, the Integral Calculus. During the Sophomore and Junior Years, Loomis' Series of Text-books are used—supplemented largely by oral instruction, and numerous exercises in addition to the Examples for Practice of the Text-books.

The Senior Class in Mathematics (elective) has one exercise a week throughout the year under Dr. Halsted. The course for the current year is Analytical Geometry of Three Dimensions, with the Discussion of Hyper Space and Curved

Space; Byerly's Differential and Integral Calculus, with Lectures on the different Theories of the Calculus, the History of Mathematics, and the Elements of Quaternions.

A characteristic feature of our method of teaching Mathematics is the prominence given to oral instruction. Throughout the course, Lectures on the History as well as the Principles of the different branches of study are given by the Instructors.

Astronomy.

PROFESSOR YOUNG AND MR. MCNEILL.

General Course—Required.

This course occupies two hours weekly during the first term, and one hour weekly during the second and third terms. The exercises consist of recitations from Newcomb and Holden's "Astronomy for High Schools and Colleges," supplemented by lectures.

In the first term the principal subjects treated are astronomical instruments, the methods of finding time, latitude and longitude, the earth in its astronomical relations, and the moon. In the second and third terms the sun, the planetary system and the fixed stars are discussed.

The aim of the course is to impart a knowledge of the most important facts of the science, with an understanding of its principles, but the higher mathematics of the subject are not attempted. The class have frequent opportunities for examining the most interesting objects with the telescope.

Practical Astronomy—Elective.

One exercise weekly during Senior year. Text-book, Loomis' "Practical Astronomy." The exercises consist in lectures upon the various instruments and their use, with recitations from the text-books, and the discussion of the observations made by the class.

When the weather permits, each member of the class is required to spend from two to six hours weekly in making and reducing observations. The principal subjects embraced in the course are the following:

I. SEXTANT AND REFLECTING CIRCLE.

(a) Adjustment and errors.

(b) Determination of local time by altitudes of the sun (or stars).

(c) Latitude by circum-meridian altitudes of sun.

(d) Latitude by altitude of the pole star and a corresponding southern star.

II. TRANSIT INSTRUMENT.

(a) Theory of errors and adjustment.

(b) Determination of local time by star observations, the azimuth correction being determined by a pair of circumpolars.

(c) *Reduction of a complete set of time-observations by the method of least squares.*

III. THE ZENITH TELESCOPE.

(a) Determination of latitude from star observations, the instrumental constants being independently determined.

(b) *Determination of latitude, together with the instrumental constants; by observations reduced by the method of least squares.*

IV. PRIME VERTICAL INSTRUMENT.

Determination of latitude and instrumental constants by star observations.

V. ASTRONOMICAL THEODOLITE.

(a) Azimuth by observations of the pole star.

(b) *Latitude and time by Gauss' "three-star method."*

VI. MERIDIAN-CIRCLE.

(a) Determination of instrumental constants.

(b) Determination of star places (right ascension and declination), including the reduction of apparent place to mean.

(c) *Investigation of errors of graduation and periodic errors of micrometer screw.*

VII. EQUATORIAL.

(a) Adjustment of the instrument.

(b) Determination of the place of a comet or minor planet by the ring micrometer.

(c) Study of the spectra of sun spots and solar prominences.

(d) *Measurement of double stars with the wire micrometer.*

VIII. MISCELLANEOUS.

(a) Value of level divisions determined with the "level-trier."

(b) Determination of personal equation with Eastman's personal equation machine.

(c) *Form and size of transit instrument pivots determined with pivot spherometer.*

NOTE.—The italics denote problems regarded as supplementary. For want of time they are not generally all taken by any one member of the class, but are distributed according to circumstances.

Physics.

PROFESSOR BRACKETT AND MR. MAGIE.

Junior Year.

Prescribed Course.—This course is conducted by means of recitations and lectures. Ganot's Treatise is used as a text-book. The subjects treated are:

First term—Elementary Mechanics; General Properties of Bodies; Hydro-dynamics; Pneumatics; Magnetism; Electrostatics.

Second term—Electro-dynamics; Magnetism; Acoustics; Optics.

Third term—Optics finished; Heat.

Special prominence is given to the study of Electricity and Optics.

The valuable and well selected apparatus with which the department is supplied, is constantly employed to illustrate and enforce the principles discussed.

Four hours a week, during the first term, and three hours a week during the second and third terms are allotted to this course.

Senior Year.

ELECTIVE COURSES.—These courses, in general, involve practical work in the Physical Laboratory. They afford opportunity for the extended study of special topics.

During the present year, to meet the wishes of several students, a theoretical course in Physical Optics and the Theory of Heat is given, which involves but little laboratory work. The text-books upon which the course is based are Glazebrook's Physical Optics and Maxwell's Theory of Heat.

The students pursuing the laboratory courses are referred to Pickering's Physical Manipulations, Kohlrausch's Physical Measurements, Einleitung in die Praktische Physik—Pscheidl, etc., and they are encouraged to study the problem on which they may be engaged in the special manuals and memoirs accessible in the Library of the College. In addition, recitations upon Cumming's Theory of Electricity are required from those studying Electricity.

The following are among the problems ordinarily assigned: Determination of the intensity of the force of gravity at Princeton, by the method of Kater and by that of Borda; determination of the modulus of elasticity for different metals; determination of the magnetic declination, and the horizontal component of the Earth's magnetism, by the magnetometer; determination of the magnetic dip and the total magnetic force by means of the dip circle; measurement of the electro-motive force of various elements in absolute units by means of the absolute electrometer, and by means of the quadrant electrometer; measurement of electric currents by means of the voltameter; verification of Faraday's laws of electrolysis; determination of the efficiency of the dynamo-machine; measurement of the work expended in maintaining an incandescent lamp in action, (1) by means of the electric relations of the circuit, (2) by means of the calorimeter; determination of index of refraction by several methods; verification of Fresnel's researches in diffraction, with discussion; measurement of wave lengths of light by simple diffraction methods, and by means of the spectrometer; examination of the phenomena and laws connected with polarized light.

Those electing these courses are expected to devote at least two hours a week to laboratory work. At the close of the year each student is required to present a thesis discussing some problem previously assigned.

Chemistry.

PROFESSOR SCHANCK.

Students in the Academic Department attend a required course in General Chemistry and an elective course in Applied Chemistry throughout the entire Senior year. The instruction in these branches is given by Professor Schanck.

The course of instruction in General Chemistry, occupies two hours in the class-room each week, and in this course the attempt is made to give quite fully the leading principles and facts of General Chemistry, enforced by carefully prepared experimental illustrations. Besides these table illustrations, free use is made of Lantern projections, and recitations and written examinations are required. The advantage of taking notes and of reading, in connection with the lectures, such works as Roscoe's, Fowne's, Miller's, and Roscoe and Schorlemmer's, is appreciated and urged upon the class.

The additional parallel and elective course, embracing the leading applications of Chemistry in the arts of life, also illustrated fully, occupies one additional hour each week.

The instruction in these branches is meant to be full, clear, sharply defined and easily understood.

Laboratory Chemistry.

PROFESSOR CORNWALL; DR. MCCAY, ASSISTANT.

This branch of Chemistry constitutes an elective study in the Senior year. The class attend lectures, with occasional recitations, and also work in the Laboratory. During the first term, qualitative chemical analysis is taken up, the students learning to detect single bases and acids, acquiring thereby sufficient training to pursue further the study of qualitative analysis without supervision, should they desire to do so. At the same time they are required to explain fully, by chemical formulas and written explanations, all of the reactions involved in making the tests.

During the second and third terms, experiments illustrating principles of General Chemistry and Chemical Physics are first

performed by the students, after which the most important classes of organic compounds are studied, and finally a few special examinations are made, such as: Analysis of potable waters; examination of milk; study of the general properties of the alkaloids, with a few characteristic tests; properties of disinfectants, etc. The object of the course is to train the student, as far as possible, in chemical manipulation by means of experiments which shall both illustrate chemical principles and furnish practical knowledge likely to be of use in any subsequent professional or scientific study.

The course requires about four hours a week; three hours being generally devoted to laboratory work, and one hour to lectures or recitations.

Geology and Palæontology.

PROFESSOR SCOTT.

I. GEOLOGY.—The course in Geology conducted by Professor Scott, occupies one hour a week during the first and third terms, and two hours a week during the second term of the Junior year. The subjects treated are (1) Dynamical Geology, (2) Structural Geology, including Lithology and Petrography; and (3) Historical Geology and Palæontology. The text-book used is Le Conte's Elements of Geology (Revised Edition).

II. PALÆONTOLOGY.—The course in Palæontology, under Professor Scott, is one of the elective studies of the Senior Class, and occupies about three hours a week throughout the year, including one lecture and two hours of laboratory work a week. This course is chiefly devoted to the subject of Vertebrate Palæontology, and is a continuation and expansion of the course of the Junior year on Historical Geology. The laboratory work is done with the coöperation of Professor Osborn, and is devoted to a dissection of those recent types best adapted to throw light on the structure of their fossil allies; also to an examination of the fossils and their comparison with each other. The text-books employed are Huxley's Anatomy of the Vertebrates, and Wiedersheim's Lehrbuch der Vergleichenden Anatomie.

For advanced students there are especial facilities for study in the large number of undescribed fossil Vertebrates collected in the West by the three scientific expeditions sent out by the College in 1877, 1878 and 1882.

Physical Geography.

PROFESSORS GUYOT AND LIBBEY.

This course occupies one hour each week throughout the Senior year, as an elective study. It consists of the study of the Earth in the age of man, comprising two parts :—

A. THE GEOGRAPHY OF NATURE, or Physical Geography proper.

1. The Earth in the Solar system; Astronomical Geography, especially with reference to Climatology.

2. The Earth as a whole, or Physics of the Globe ; its form, dimensions, density, and weight; its proper temperature, volcanoes and earthquakes; its magnetism.

3. The surface of the earth.

a. The Lands, their arrangement; morphology of the continents; laws of relief.

b. The Waters and their movements ; Inland waters and continental drainage ; Oceanography ; Tides and marine currents :—the facts and their causes.

c. The Atmosphere; Climatology ; Laws of distribution of temperature; Winds and Rains ; Snow, ice and glaciers.

Lectures and recitations once a week by Professor Libbey during the first and second terms. Text-book, Guyot's Physical Geography.

4. Laws of the distribution of life. Plants and Animals.

B. GEOGRAPHY OF MAN, or the relations of Physical Geography to the History of mankind ; Human races, characteristics and law of distribution, contrasted with the distribution of life in nature; the historic races and their functions in history. The continents as instruments for the development of human societies. The continents of Nature: Africa, South America, Australia. The continents of History : Asia, Europe, North America. Their special functions in the progressive develop-

ment of mankind. About ten lectures, with oral and written examinations, in the third term, by Professor Guyot. Text-book, The Earth and Man. Both courses are abundantly illustrated.

Biology.

PROFESSORS SCHANCK, MACLOSKIE, OSBORN, LIBBEY AND SCOTT.

The required studies in this branch are included in a course which occupies one hour a week through the Sophomore year. Professor Schanck opens the course with a series of lectures, illustrated by models and diagrams, upon Human Anatomy and Physiology. Professor Macloskie resumes the work during the second term in a series of lectures on Elementary Zoölogy. In the third term Professor Macloskie conducts a series of recitations in Botany, accompanied by practical work in the examination of plants. In the Junior year there is, strictly speaking, no biological work, although the required course in Geology, under Professor Scott, includes very full accounts of the development and the principal characters of the animal life of the different geological periods. In the Senior year students may elect either Biology, or Palæontology. The latter is conducted by Professor Scott, with practical biological work under Professor Osborn. (See Course in Geology.)

The elective course in Biology is conducted by Professor Macloskie with the coöperation of Professor Osborn. This course occupies two required and three optional hours a week, and the subjects are divided as follows: (1) Structural Botany and the Invertebrate Animals, under Professor Macloskie, including the structure and physiology of the principal plant-types and types of Invertebrates; among the latter are such forms as the Amœba, the Lobster, the Locust, the fresh-water Mussel, and the Ascidians. The laboratory work connected with this study includes dissection and the use of the microscope upon the typical plant and animal forms. (2) The second part of the course opens in February and consists of the general Anatomy of the Vertebrates and a discussion of the Influences

of Natural Environment, by Professor Osborn, including (*a*) lectures upon the development and morphology of the Vertebrates and (*b*) lectures upon the structure of animals as influenced by other animals, as well as by light, climate, temperature, and the physical changes of the earth's surface.

The practical work is upon the development of the chick, following the earlier chapters of Foster and Balfour's Elements of Embryology.

During the second term an optional course of lectures on the Embryology of the Vertebrates will be given by Prof. Scott.

Histology.

PROFESSOR LIBBEY.

This study is an elective, occupying one afternoon each week during the first term of Senior year, and consists of lectures and recitations upon Normal Histology. Only the normal tissues are discussed, and as wide a range of comparative study of the tissues in the animal kingdom is made as the time allotted permits. Especial attention is devoted to injecting, hardening, preserving, staining and mounting specimens, and students are carefully drilled in section-cutting and in the use of the microscope, every facility being placed in their hands to enable them to do good work.

The lecture occurs on Friday afternoon of each week at 3 o'clock, but the laboratory is open at all hours to its regular students for private investigation, and the instructor will be present on Tuesday, Wednesday and Thursday afternoons to give assistance to those who may be present. A fee of $5 is charged to cover mounting material, slides, &c.

SYNOPSIS OF COURSE.

FRESHMAN YEAR.

First Term.

LATIN—Livy, (Book I). Leighton's Roman History. Latin Prose Composition. Virgil : (Æneid, VIII–XII). GREEK—Homer's Iliad, (Books XVI, XVIII, XXII). Selections from

Herodotus, Thucydides, Xenophon; Greek Grammar; Greek Prose Composition. MATHEMATICS—Geometry (Todhunter's Euclid). ENGLISH—Principles of Discourse—Part I (Hunt), Essays. ORATORY—Lectures, and Drill in Elocution.

Second and Third Terms.

LATIN—Livy, (Books XXI, XXII). Roman History (Leighton's continued). Horace: Odes (two Books). Latin Prose Composition. GREEK—Homer's Iliad; Herodotus, Thucydides, Xenophon: Selections. Outlines of Greek History. Greek Prose Composition (Sidgwick's.) MATHEMATICS—Algebra, (Well's). Geometry (Todhunter's Euclid). Ratio and Proportion. Spherical Geometry. Halsted's Mensuration. ENGLISH—Trench's Select Glossary. Essays. FRENCH—Grammar (Substantive, Adjective, Numeral, Pronoun), with oral and written exercises.

SOPHOMORE YEAR.

First Term.

LATIN—Selected letters of Cicero. Roman History from the Gracchi to Augustus. Terence: Adelphi. Latin Composition. Exercises in Rhetoric and Style. GREEK—Demosthenes: the Olynthiacs and Philippics. Rhetoric of Aristotle: Selections. Word-Formation. Laws of Phonetic change. Greek Composition. Euripides: The Medea. Xenophon's Memorabilia. MATHEMATICS—Plane Trigonometry, Mensuration and Navigation. ENGLISH—Principles of Discourse, Part II (Hunt). Lectures on English Style. Essays. FRENCH—Grammar completed. Dumas: Napoléon. ANATOMY and PHYSIOLOGY. ORATORY—Elocution. Declamations. Written orations.

Second and Third Terms.

LATIN—Horace: Selected Satires and Epistles. Terence: Andria. Latin Composition. GREEK—Demosthenes: the Olynthiacs and Philippics. Rhetoric of Aristotle: Selections. Word-Formation. Laws of Phonetic Change. Greek Composition.

Euripides: The Medea. Xenophon's Memorabilia. Dialogues of Lucian (Williams' Selections). MATHEMATICS—Surveying. Spherical Trigonometry. Analytical Geometry. Elements of the Differential Calculus. ENGLISH — Trench's Study of Words. Lectures on English Language. Essays. FRENCH —Syntax. Dumas: Napoléon. ZOÖLOGY and BOTANY. ORATORY—Elocution. Declamations. Written orations.

JUNIOR YEAR.

First Term.

REQUIRED STUDIES.

LOGIC—McCosh's Manual. PSYCHOLOGY—McCosh's "The Senses." PHYSIOLOGICAL PSYCHOLOGY. PHYSICS. GEOLOGY. ENGLISH LITERATURE—Chaucer. Lectures. Essays. ORATORY —Analysis and Composition of Themes, Theory and Practice.

ELECTIVE STUDIES.

LATIN—Cicero De Natura Deorum and De Fato. GREEK —Æschylus: Selected Dramas. Lectures on the Attic Drama. MATHEMATICS—Analytical Geometry. Differential Calculus. FRENCH—Syntax. Racine's Athalie. Corneille's Cid. GERMAN —Grammar. Oral and written translations from English into German. Whitney's German Reader. ANGLO-SAXON—March's Anglo-Saxon Grammar and Reader.

Second and Third Terms.

REQUIRED STUDIES.

PSYCHOLOGY—McCosh's "Intuitions of the Mind." LOGIC. PHYSICS. GEOLOGY. ENGLISH LITERATURE—Lectures. Essays. ORATORY—Criticism, Written Orations, Delivery.

ELECTIVE STUDIES.

HISTORY. LATIN—Juvenal, with History of the Empire. Selected Letters of Pliny. Plautus: The Trinummus. GREEK—

Aristophanes: The Acharnians. MATHEMATICS—Differential and Integral Calculus. FRENCH—Exercises in Syntax. Racine's Athalie. Corneille's Cid. GERMAN—Grammar, and Prose Composition. Whitney's German Reader. ANGLO-SAXON—Cædmon's Exodus and Daniel (Hunt). Beowulf (Harrison). Lectures on First English.

SENIOR YEAR.

First Term.

REQUIRED STUDIES.

METAPHYSICS. ETHICS—Hickok's Moral Science. ASTRONOMY. CHEMISTRY—Fowne's. Roscoe's. Barker's. Miller's. ENGLISH LITERATURE—Lectures. Essays. ORATORY—Criticism, Written Orations, Public Address.

ELECTIVE STUDIES.

LATIN AND SCIENCE OF LANGUAGE—Lucretius. General Principles of Philology with Lectures. GREEK—Sophocles: Œdipus Tyrannus. Aristotle's Ars Poetica. Plato: Selected Dialogues. Greek Literature and Philology. HISTORY OF ARCHITECTURE. MATHEMATICS. ASTRONOMY—Practical. PHYSICS—Practical course in the Laboratory. PHYSICAL GEOGRAPHY. HISTOLOGY. CHEMISTRY—Applied. LABORATORY CHEMISTRY. HISTORY OF PHILOSOPHY—Ancient. (Mayor's History of Ancient Philosophy.) FRENCH—Translations from Sadler's "English into French". Critical review of the French Drama. Lectures on the History and Literature of the Language. GERMAN—Review of Grammar. Lessing: Minna von Barnhelm. Goethe: Hermann und Dorothea. Faust, first part. Schiller: Jungfrau von Orleans. Lectures on the History and Literature of the language. BIOLOGY OR PALÆONTOLOGY.

Second and Third Terms.

REQUIRED STUDIES.

POLITICAL SCIENCE. ETHICS. ASTRONOMY. CHEMISTRY. ENGLISH LITERATURE—Lectures. Essays. SCIENCE AND RE-

LIGION — Lectures and Recitations. ORATORY — Criticism. Written Orations. Public Address.

ELECTIVE STUDIES.

SCIENCE and RELIGION—Lectures. LATIN and the SCIENCE OF LANGUAGE—Lucretius. Lectures on Comparative Inflection and Syntax. GREEK—Sophocles: Œdipus Tyrannus. Plato, and his Philosophy. Greek Literature and Philology. MATHEMATICS. ASTRONOMY—Practical. PHYSICS—Practical course in the Laboratory. PHYSICAL GEOGRAPHY. CHEMISTRY—Applied. LABORATORY CHEMISTRY. HISTORY OF PHILOSOPHY—Modern. FRENCH—Continuation of studies of first term. GERMAN—Continuation of studies of first term. BIOLOGY or PALÆONTOLOGY.

EXAMINATIONS, STANDING AND GRADUATION.

EXAMINATIONS.

Regular Examinations.—At the end of each term each class is ordinarily examined in the studies of that term. At the close of the third term the examination in certain subjects embraces not only the work of that term, but the course of the entire year.

Partial Examinations and Written Recitations.—In addition to the regular examinations, partial examinations or written recitations are held from time to time during the term.

Divisional Examinations.—In the Freshman Class, a special examination is held early in the first term, the results of which determine the formation of the class into graded divisions. These are reorganized at the beginning of the second and third terms, according to the results of the last preceding regular examination.

General Regulations.—Examinations are for the most part conducted in writing, but in certain subjects are oral in whole or part. Private examinations are not allowed except in extreme cases, and by special permission of the Faculty. Absence from an examination, except for reasons of absolute necessity, will be regarded as a serious delinquency, and a subsequent examination will not be granted except by a vote of the Faculty.

Regulations in respect to the removal of conditions.

Those who shall appear to the Faculty, on examination, to be deficient in their studies, will be dealt with according to the nature and extent of the deficiency. Any member of either of the three lower classes who shall fail to pass the examinations at the end of the first or second term in more than two departments, shall be dropped from his class and shall be required to

enter a lower class or to withdraw from College. If the failure be in not more than two departments, the student may be allowed a second trial at the beginning of the next term; if he fail in this second examination, he shall employ a tutor approved by the Faculty, and be allowed four weeks for further preparation, but if he still fails to pass, he shall be required to enter a lower class or withdraw from College. The same rules shall apply to the examinations at the close of the third term, except that in the case of failure in not more than two departments the student shall be required to pass a satisfactory examination at the beginning of the next Academic year, and will not be allowed additional time for preparation, nor a third trial.

In the Freshman Class two "departments" are recognized in Greek, in Latin, and in Mathematics. In each of these the professorial instruction is considered as constituting one department, and that under the tutor or corresponding officer another.

The Senior Class will be subject to the same regulations as the three lower classes so far as regards the examinations at the close of the *first* term, and the removal of any conditions then incurred.

In the application of these regulations, special cases, arising from illness or other causes, will be duly considered.

On the second day of each term, Thursday, at 10 o'clock A. M., all delinquent or unexamined students are required to meet in the old Chapel to make arrangement with their instructors for examination in the subjects in which they are deficient. In the first term this examination is to take place immediately at the beginning of the term; in the second and third terms two weeks are allowed for it. Any student not present as thus directed, or not prepared for examination at the time appointed, will be debarred from another opportunity, except by special vote of the Faculty.

STANDING.

The results of the term examinations are combined with those of the recitations to decide the relative standing or grade of the student during the term. In computing grades, each study, elective or required, is estimated relatively to the others according to the number of hours which it occupies in the

weekly schedule of lectures and recitations. The conduct of the student and his attendance also affect his standing. The maximum grade in each department is one hundred; the minimum, or passing grade, is fifty. A student whose grade, as determined by the combination of his examination and recitation marks, falls below fifty, is conditioned, and in order to continue with his class must be re-examined. A report of the standing of each student is made to his parent or guardian by the Registrar of the College at the close of the first term and at the end of the year. The last report gives the student's standing for the year.

The final grade of a student is calculated from all the grades received by the student during his College course.

GRADUATION.

Bachelor's Degree.

Students whose final grade is above fifty are ordinarily recommended by the Faculty for the Degree of Bachelor of Arts, and if the recommendation is approved by the Trustees, they receive diplomas signed by the President and the Clerk of the Board of Trustees.

No student will be recommended to the Trustees for a degree who fails to pass a satisfactory examination at the close of the last term of the Senior year. A student whose grade at this final examination is below fifty in any department will forfeit the title to a degree, and it can only be restored by express vote of the Faculty upon sufficient reasons given, and in accordance with the following regulations:

(1.) Any member of the Senior Class failing at the final examination in but *one* of his studies may, by vote of the Faculty, be allowed a re-examination, and if successful in passing this may be recommended to receive his degree with his class.

(2.) Any member of the Senior Class failing to pass the final examination in *two* of his studies may, by vote of the Faculty, be allowed a re-examination, and if successful in this may be recommended for a degree *at some time in the next Academic year.*

Commencement Appointments.

Commencement Orations, indicative of general or special excellence, are awarded by the Faculty to such students as are deemed worthy of distinction. The Latin Salutatory is ordinarily awarded to the student who stands first in the class, and the English Salutatory to the student who stands second. The Valedictory is awarded with special regard to the qualifications of the student as a Valedictorian, as well as on the ground of Scholarship. Orations and Theses designated as Philosophical, Classical, Mathematical, Physical, Metaphysical, Ethical, Historical, Literary, Belles Lettres, French, and German, are awarded to students eminent in the corresponding departments.

In awarding all honors, regard is had to the moral conduct of the candidates.

THE

JOHN C. GREEN SCHOOL OF SCIENCE.

FOUNDATION AND ORGANIZATION.

This institution is a department of the College of New Jersey, founded upon an endowment by Mr. John C. Green.

It had been felt for some time that the College should be able to offer more extended and special instruction in the Natural Sciences, and accordingly the School of Science was established in 1873, with a course in General Science for undergraduate students, and also with graduate courses in Science. The course in Civil Engineering was added in 1875, by further endowment from the residuary legatees of Mr. Green, and subsequently the elective courses in certain branches of the Natural Sciences were established.

The undergraduate courses now offer, according to the choice of the student, efficient education in the Natural Sciences in general, or a thorough training in the study of Civil Engineering and of various other branches of Science, pure and applied. At the same time, a liberal education in certain Academic studies is secured to all candidates for a degree.

Graduate courses of study for the degrees of Master of Science and Doctor of Science are also provided; as well as special courses which may, under certain conditions, be taken by students who are not candidates for any degree.

Instruction is given by lectures and recitations, as well as by practice in the laboratories, drawing rooms, museums and field, while excursions are made to different points of interest.

Before receiving his degree every student must present to the Faculty an acceptable thesis on some scientific subject, the nature of which will depend upon the course he has pursued.

ADMISSION.

ENTRANCE EXAMINATIONS.

The first examination for admission will begin in Princeton on Thursday, June 19th, at 11 A. M., and will continue through the forenoon of Friday. The second will begin on Tuesday, September 9th, at 11 A. M., and continue through the forenoon of Wednesday. *Attendance is required at the beginning of the examination.*

Simultaneously with the June entrance examinations in Princeton, examinations are also held in the following cities, viz.: Cincinnati, Louisville, Chicago, St. Louis, Denver and San Francisco; and elsewhere if necessary. The precise places in which the examinations are to be held can be learned by application to the President.

Examinations at other times and places than those specified are very inconvenient and often impracticable, and applicants for admission at other than the regular days are required to pay $10 into the treasury.

Candidates for admission to the Freshman Class must be at least sixteen years of age. They will be examined in the following books and subjects:

ENGLISH: Grammar; Whitney, or Reed and Kellog (Higher Lessons): Modern Geography; Guyot's Grammar-School Geography: U. S. History, Scott's or Anderson's Grammar-School History: Rhetoric; Subject of Sentences in Hart's or Kellogg's Rhetoric: Essay; the writing of a short essay is required as a part of the examination in English; the theme for 1884 will be taken from U. S. History. MATHEMATICS: Arithmetic entire, including the Metric System, a practical knowledge of which is indispensable; Algebra, through Quadratic Equations of one and two unknown quantities, including Evolution, Radicals, Theory of Exponents: Geometry, Plane Geometry entire (five books of Chauvenet's

Geometry or their equivalent). LATIN: *Grammar*, with special attention to Parsing, and the retranslation from English into Latin of simple sentences from the First Book of Cæsar; *Translation*, Cæsar (five books of the Gallic War), or equivalents from other Latin authors.

It is recommended that all candidates should receive instruction in Free-hand Drawing before their entrance.

OTHER REQUIREMENTS.

Candidates for admission to an advanced class will be examined in the studies previously pursued by the Class they propose to enter.

All candidates for admission must bring satisfactory testimonials of moral character, and if the candidate has been a member of another College, University, or similar institution, he must produce a certificate from its President or Faculty that he is free from censure in the same.

No candidate is admitted without an examination and a vote of the Faculty.

On the second day of the first term, Thursday, at 9 o'clock, A. M., the entering students meet in the Old Chapel for the registration of their names and subscription to the following pledge, required by the Board of Trustees:

> We, the undersigned, do individually for ourselves promise, without any mental reservation, that we will have no connection whatever with any secret society, nor be present at the meetings of any secret society in this or any other College so long as we are members of the College of New Jersey; it being understood that this promise has no reference to the American Whig and Cliosophic Societies. We also declare that we regard ourselves bound to keep this promise, and on no account whatever to violate it.

UNDERGRADUATE COURSES.

Undergraduate courses are provided for the Degrees of Bachelor of Science, and of Civil Engineer.

Candidates for the degree of Bachelor of Science pursue the course in *General Science* until the end of the first term of the Junior year, after which they may continue in that course, or choose one of the following four *Elective Courses: Chemistry and Mineralogy; Biology and Chemistry; Biology and Geology; Mathematics and Mechanics.*

In the Senior year students taking the course in General Science, or the elective course in Mathematics and Mechanics, may pursue a *select course in Physics*, or *Practical Astronomy.*

The student must announce his election before the end of the first term of the Junior year. He cannot afterwards change his course without the permission of the Faculty.

The course in *Civil Engineering* diverges from that in General Science at the very beginning of the Freshman year.

Special Students.—For persons who may desire to devote especial attention to any of the scientific studies of the School, arrangements can be made with the Professors of those branches, if the Professor in charge shall, after due investigation, decide that the applicants can pursue such studies with advantage. Every facility will be offered for their advancement in the studies selected, with the personal supervision of the Professor and full access to the collections, etc.; but it must be distinctly understood that this opportunity is intended only for those who desire to obtain proficiency in special branches, and not for students who have failed to keep up with the regular classes. Special students will be required to give evidence of satisfactory progress in their studies. To those passing successful examinations in the branches selected, certificates of proficiency will be given. The branches open to special students include: *Geology; Mineralogy; Biology; Physics; Practical Astronomy; Analytical and Applied Chemistry; Assaying; Topography.*

COURSES FOR THE DEGREE OF BACHELOR OF SCIENCE.

COURSE IN GENERAL SCIENCE.

This course is especially intended to furnish instruction in the Natural Sciences in general, and the required studies of the course are indicated in the synopsis on p. 87. After the beginning of the second term of the Junior year the student pursues, under the direction of the Faculty, elective studies in various branches of science, to occupy the hours not devoted to the required studies.

STATEMENT OF STUDIES.

Modern Languages.

PROFESSOR HUSS.

Instruction in Modern Languages comprises German and French as a required study throughout the entire course; the number of exercises being given in the synopsis, p. 87.

In the Freshman year the student begins and completes the etymological part of grammar, both in German and French. The instruction is, at the very outset, conducted with a view to familiarizing the student not only with reading and writing, but also with speaking the foreign idiom; for which latter purpose conversational exercises are constantly resorted to and especial attention is given to pronunciation.

In the Sophomore year the instruction bears on syntax, with oral and written exercises in more difficult French and German prose, particular attention being given to the intricacies of the German period.

The Junior year and the first term of the Senior year are devoted to a critical study of, and lectures on the master-pieces of German and French literature, and to the writing of compositions in either language.

Mathematics.

PROFESSOR ROCKWOOD AND DR. HALSTED.

The Mathematical course, which is the same for all students of the School of Science, is intended to be so framed as to supply the necessary foundation in knowledge and training for the later

studies of Physics and Mechanics, and especially finds its natural continuation in the applied mathematics of the course in Civil Engineering. The fact that the student's mathematical knowledge is thus to be *used* in other departments is carefully kept in view, not only in selecting the subjects to be studied, but in arranging their order and the relative time to be devoted to each, so that he may be properly prepared for the work before him. In this connection also especial mention may be made of the constant blackboard practice, which is a prominent feature of the instruction, and gives the student a practical as well as a theoretical familiarity with the processes, preparing him for their ready use afterward in the special investigations of his later studies.

The student is required, at the entrance examination, to be acquainted with Arithmetic, including the Metric System; Algebra through Quadratic Equations, including Radicals and the Theory of Exponents, and with the principles of Plane Geometry as developed in the first five books of Chauvenet's Geometry.

During the whole of the first year the student devotes five hours a week to Mathematics. In the first term he finishes the study of Algebra (Wells), discussing the various forms of Series, the subject of Logarithms, and the Theory of Equations.

In the second term Solid Geometry and Spherical Geometry are studied, under Dr. Halsted, the text-book being Chauvenet's Treatise, and the subject being illustrated by a numerous and valuable collection of models, mostly from original designs. With the Geometry is combined a thorough course in Mensuration. A part of the third term is devoted to Plane Trigonometry, in which the student becomes accustomed to the practical use of Logarithms, and in like manner a part of the first term of the Sophomore year is given to Spherical Trigonometry. The second and third terms of the Sophomore year are devoted to the study of Analytical Geometry (Loomis), both of the Plane and of Space, with special reference to the Conic Sections. In the first term of the Junior year the Differential and Integral Calculus are studied, with five exercises a week. Throughout the whole course, the blackboard drill is combined with abundant oral explanation and occasional formal lectures.

The Calculus ends the course in the Pure Mathematics required of all students. They pass then to the applications of their work in the special departments of Engineering, Physics, Astronomy, etc. Provision is, however, made for the further special study of the subject by the elective course in Mathematics and Mechanics.

Graphics.

PROFESSOR WILLSON.

INDUSTRIAL DRAWING.—This study occupies seventy hours during the first term of the Freshman year, and embraces instruction in the use of drafting instruments and materials in the various operations of Industrial Science Drawing: such as tinting and shading, both with pen and brush; lettering; the representation of metals, wood, rocks, earth, tiles and other materials of architectural and engineering construction; architectural drawings to scale, from measurements; solution of problems relating to compound curves suitable for arch "face-lines," etc. Text book: Warren's "Drafting Instruments and Operations."

PLANE PROBLEMS AND ELEMENTS OF DESCRIPTIVE GEOMETRY.—Instruction in these subjects occupies 120 hours during the second term of the Freshman year, and embraces:

(a). The construction of the cycloid and other trochoidal curves, of the spirals and of the paths traced by points in link motions.

(b). The orthographic projection (in the first angle) of points, lines, surfaces and solids, with problems of sections, interpenetrations and developments relating to the latter, including the five regular solids.

(c). Axonometric (including Isometric) projections, with drawings from models, to scale, from measurements.

(d). Elementary problems of shades and shadows.

(e). Elementary problems of the point, line and plane in the four angles. Text book: Angel's Practical Plane Geometry and Projection.

DESCRIPTIVE GEOMETRY.—This embraces a course of 72 hours, in the first term of the Sophomore year, on developable,

double-curved and warped surfaces, spherical projections and trihedrals. Text books: Warren's Descriptive Geometry; Angel's Practical Plane Geometry and Projection.

SHADES, SHADOWS AND PERSPECTIVE; a course occupying 30 hours in the second term of the Sophomore year. Text book: Warren's "Shades, Shadows and Perspective."

FREE-HAND DRAWING; a course occupying 64 hours in the Junior year. Drawings from photographic and other models, including plaster casts, architectural constructions, specimens in the museum collections, etc., preparatory especially to advanced work in the study of Biology.

ELECTIVE COURSES.—Stereotomy (see course in Civil Engineering), may be elected by any student taking the elective course in Mathematics and Mechanics; and both Stereotomy and Machine Drawing (see course in Civil Engineering), may, in the Junior and Senior years, be elected by students taking the course in General Science, when no interference with other studies is occasioned.

DRAFTING ROOM and MODELS.—The recitation and drafting room of the department of Graphics is well lighted and furnished with model cases and with desks for the accommodation of ninety-two students. The drawing courses are illustrated by a large collection of models, including a number of duplicates of the Olivier models, several warped surface models from designs by the instructor, and one hundred and seven models from the Messrs. Schröder, Darmstadt, illustrating Descriptive Geometry, Perspective, Shades and Shadows, Architectural framings, Stereotomy, Kinematics and Machinery.

General Chemistry.

PROFESSOR SCHANCK.

The instruction in this study occupies two hours a week during the Sophomore year, being the same as that in the required course in General Chemistry, of the Academic classes. Students pursuing the course in General Science also attend Professor Schanck's elective course in Applied Chemistry, during the Senior year.

Analytical Chemistry and Mineralogy.

PROFESSOR CORNWALL; DR. MCCAY, Assistant.

MINERALOGY.—The elements of Crystallography are taught by a short course of lectures during the third term of the Freshman year. Determinative Mineralogy, with the blowpipe, is taught during the whole of the first term of the Sophomore year, in a course of four exercises a week, (two hours each). In the Senior year a course of lectures on Descriptive Mineralogy, with practice in the determination of minerals by their physical characteristics, together with the optical study of minerals and rocks, may be elected by the students in the course in General Science.

ANALYTICAL CHEMISTRY.—During the second and third terms of the Sophomore year, the students attend lectures, with recitations, and also work in the laboratory, pursuing the study of Qualitative Chemical Analysis, with Fresenius's Manual as a guide. Four exercises a week (of two hours each) are given to the study of the detection of bases, together with instruction in the tests for the common acids, inorganic and organic. During the Junior and Senior years instruction in Quantitative Chemical Analysis may be taken, as an elective.

Geology.

PROFESSOR SCOTT.

This course will occupy two hours a week during the second and third terms of the Junior year, and will be more technical in character than the geological course of the Academic Department, though covering nearly the same ground. Dynamical, Structural and Historical Geology will be treated, but special attention will be given to Structural Geology, including Petrography, with reference to its technical and economical bearings.

The text-book employed will be Geikie's Manual of Geology.

Botany.

PROFESSOR MACLOSKIE.

During the Freshman year Botany is a required study. There are five exercises a week (of two hours each), for fourteen weeks. The work of the class is exclusively practical, and includes the

examination of plants as to their morphology, histology, modes of development, and physiology. Students are taught to use their hands and eyes, to avail themselves of microscopical appliances, to master the characters of the larger orders of plants, and are exercised in phytography by describing and drawing what they see. The text books and manuals are used for reference, but each student is required to prepare his own text-book by noting down the results of his own examination of typical plants. Botanical excursions are made in the spring season to the surrounding districts, and an original thesis on some botanical subject is required of each student. (Books recommended: Macloskie's *Elementary Botany;* Gray's *Manual of Botany;* Steele's *Fourteen Weeks in Botany.* Books of reference: Sachs' *Text Book of Botany;* Eichler's *Blüthendiagramme;* H. Müller's *Fertilization of Flowers;* Le Maout and Decaisne's *Botany;* Bentham and Hooker's *Genera Plantarum;* De Candolle's *Prodromus.* Also the monographs on special groups of Flowering and Flowerless Plants.)

Zoology.

PROFESSORS MACLOSKIE AND OSBORN.

During the Sophomore year all candidates for the Degree of B. S. have an elementary course in Zoölogy, consisting of two exercises a week during the latter half of the College year. The last half of the second term under Professor Macloskie is devoted to exercises, with recitations, on Invertebrate Animals; and the third term, under Professor Osborn, to the Vertebrates.

In the Junior year this course is continued during the first term. (See course in Biology and Geology.)

Studies Pursued in Common with the Academic Classes.

The following studies are pursued either together with the Academic classes, or essentially as stated under the corresponding titles in the Academic course, and under the same instructors:

Psychology or Logic, according to the election of the student; Political Economy; English Literature, the Essays and Oratory

required from the Senior Class in the Academic course being replaced in the Scientific course by the preparation and reading of Theses on Scientific subjects; Rhetoric and English Language; Oratory; Physics; Astronomy; Human Physiology and Anatomy.

SYNOPSIS OF COURSE.

The required studies of the course in General Science are indicated in the following synopsis, the bracketed figures denoting the number of exercises in each subject:

FRESHMAN YEAR.

First Term.

MATHEMATICS: Algebra completed (Wells'); [65]. ENGLISH: Principles of Discourse, Part I (Hunt); Essays; [13]. MODERN LANGUAGES: German; Huss' System of Oral Instruction. French; Otto's Grammar, with oral and written exercises; [65]. BOTANY; Flowering Plants; Vegetable Histology (Macloskie's *Botany*); [30]. DRAWING: Elements of Industrial Drawing; [35]. ORATORY: Lectures and Drill in Elocution.

Second and Third Terms.

MATHEMATICS: Solid and Spherical Geometry (Chauvenet); Mensuration; Plane Trigonometry; [95]. ENGLISH: Trench's Select Glossary; Essays; [19]. MODERN LANGUAGES: German; Huss' System of Oral Instruction, completed. French; Otto's Grammar, completed; [95]. BOTANY: Flowerless Plants; Herbarizing (Macloskie's *Botany*; Gray's *Manual of Botany*); [35]. DRAWING: Projections and Descriptive Geometry; [60]. MINERALOGY: Crystallography; [9].

SOPHOMORE YEAR.

First Term.

DESCRIPTIVE GEOMETRY; [36]. GENERAL CHEMISTRY: Inorganic; [26]. MINERALOGY: Determinative; [52]. HUMAN ANATOMY AND PHYSIOLOGY; [13]. ENGLISH: Principles of Discourse, Part II (Hunt); Lectures in English style; Essays; [13]. GERMAN: Syntax. FRENCH: Syntax; also oral and written exercises in either language; [Modern Languages, 52]. MATHEMATICS: Spherical Trigonometry; [16]. ORATORY: Criticism, Declamations, Readings.

Second and Third Terms.

MATHEMATICS: Analytical Geometry (Loomis); Surveying; [76]. SHADES, SHADOWS AND PERSPECTIVE (Warren); [15]. GENERAL CHEMISTRY: Inorganic; [38]. ANALYTICAL CHEMISTRY: Qualitative Analysis; [76]. ZOÖLOGY: [32]. HISTOLOGY; [20]. ENGLISH: Study of Words (Trench); Essays; [19]. GERMAN: Syntax completed. FRENCH: Syntax completed. Oral and written exercises continued. [Modern Languages, 76].

JUNIOR YEAR.

First Term.

MATHEMATICS: Differential and Integral Calculus; [65]. PHYSICS: Elementary Mechanics; Properties of Bodies; Acoustics; [52]. ZOÖLOGY: Vertebrates (Packard's *Zoölogy;* Balfour's *Comparative Embryology*); [13]. ENGLISH LITERATURE: Chaucer; Lectures; [13]. MODERN LANGUAGES:—German: Lessing.—French: Racine. [39]. LOGIC, [26]; or PSYCHOLOGY; [13]. DRAWING: Free-hand; [13]. ORATORY: Oratorical Analysis; Composition and Delivery.

Second and Third Terms.

PHYSICS: Heat; Light; Electricity and Magnetism; [57]. ANALYTICAL CHEMISTRY: Quantitative Analysis.* ZOÖLOGY: Vertebrates; [19]. ENGLISH LITERATURE: Lectures; [19]. MODERN LANGUAGES:—German: Schiller; Goethe.—French: Molière; Corneille; [57]. LOGIC, [10]; or PSYCHOLOGY, [19]. GEOLOGY; [38]. DRAWING: Free-hand; [19].

SENIOR YEAR.

First Term.

ASTRONOMY: General; [26]. GENERAL CHEMISTRY: Applied; [13]. ANALYTICAL CHEMISTRY: Quantitative Analysis.* BIOLOGY; [13]. ENGLISH: Lectures on English Literature; [13]. MODERN LANGUAGES: German; Goethe. French: Victor Hugo. Reading: French and German. Compositions in either language. Reading Scientific Prose at sight; [39].

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*Varies according to Elective Studies also taken.

Second and Third Terms.

ASTRONOMY: General; [18]. GENERAL CHEMISTRY; Applied; [18]. ANALYTICAL CHEMISTRY: Quantitative Analysis.* BIOLOGY; [13]. ENGLISH: Lectures on English Literature; [18]. POLITICAL ECONOMY; [36]. ORATORY: Reading of Essays on scientific subjects.

COURSE IN CHEMISTRY AND MINERALOGY.

This course, which is designed to afford thorough instruction in Analytical and Technical Chemistry, is one of the elective courses; and students electing it, enter upon the special studies of the course at the beginning of the second term of their Junior year. They pursue, also, the following required studies of the Junior and Senior years in the course in General Science:—Modern Languages; Political Economy; Psychology, or Logic; English Literature; Physics; Astronomy; Geology; Zoölogy; Drawing; Oratory.

The remainder of the time during these two years is devoted to the following special studies of this course:—

QUALITATIVE ANALYSIS.—This subject, previously pursued so far as stated on page 85, is continued, so as to include the detection of inorganic and organic acids, as well as bases, in complex substances.

QUANTITATIVE ANALYSIS.—A full course, including the analysis of chemical and metallurgical products, ores, fertilizers, sugar, water, etc. Volumetric methods are freely used whenever they are appropriate.

ASSAYING.—Furnace assay of Ores; Bullion assays.

BLOWPIPE ANALYSIS.—Qualitative (required); Quantitative (optional).

TECHNICAL CHEMISTRY and APPLICATIONS OF CHEMISTRY to Medicine and Hygiene, including Toxicology, Analysis of Potable Waters, Adulterations of Food; Disinfectants. Lectures and recitations.

*Varies according to elective studies also taken.

MINERALOGY.—Descriptive and Determinative (the latter chiefly based upon the physical characters of the minerals).

LITHOLOGY.—Descriptive and Determinative, with microscopical examination of typical rocks.

In all of the above subjects the instruction embraces lectures by Professor Cornwall, with recitations upon the lectures and upon portions of the manuals mentioned below, and also laboratory practice, except in Technical Chemistry, under the Professor and Dr. McCay. All chemical reactions are fully explained by the use of chemical formulas, and the student must show that he understands the theory of all the operations he performs or describes.

The graduation Thesis presented by the student must embody the result of the student's own work in the Laboratory, whether it be experimental or analytical.

Text-books.—Fresenius's Manuals of Qualitative and Quantitative Chemical Analysis; Ricketts's Notes on Assaying; Cornwall's Blowpipe Analysis. Reference is frequently made to other works and to scientific periodicals.

COURSE IN BIOLOGY AND CHEMISTRY.

This course is recommended to students who intend afterwards to pursue the study of medicine. Students electing it remain candidates for the degree of Bachelor of Science. The special studies of the course begin with the second term of the Junior year, half of the time devoted to such studies being allotted to Biology and half to Chemistry. For the present year the division is made as follows:

I. BIOLOGY.—In this branch Prof. Macloskie gives a series of exercises on the anatomy of type forms of Invertebrate Animals, on Comparative Physiology, and on the Morphology and Embryology of Plants. The text-books recommended are: Packard's Zoölogy, Foster's Physiology, Brook's Handbook of Invertebrate Zoölogy, Huxley on the Cray-fish, Balfour's Comparative Embryology, Leidy's Freshwater Rhizopods, Macloskie's Elementary Botany, Bessey's Botany, Sachs's Botany.

Professor Osborn conducts two exercises a week during the second and third terms of the Junior year, and two a week during the second and third terms of the Senior year. This portion of the work is intended as an introduction to the study of Human Anatomy and embraces a thorough course in dissection and study of the skeleton of the Cat and Rabbit, employing the text-books of Mivart, Wilder and Krause. There is also a course of lectures upon Embryology in the third term of each year, with practical work upon the development of the chick and frog.

II. CHEMISTRY.—This part of the course will embrace classroom exercises under Prof: Cornwall and laboratory work under his supervision, with the aid of Dr. McCay. After learning how to make quantitative analyses of a number of simple and complex inorganic substances, by the use of gravimetric and volumetric methods, the students will study the properties of the various typical organic compounds, such as alcohols, carbohydrates, acids, etc., as well as of fats, urea, milk and other bodies of interest to the student of physiological chemistry, and will be trained in the methods of analyzing and estimating the same, reference being made to appropriate manuals and current scientific literature. Lectures will also be given upon the Applications of Chemistry to Medicine and Hygiene, including Toxicology, Analysis of Potable Water, Adulterations of Food, Disinfectants and similar subjects.

COURSE IN BIOLOGY AND GEOLOGY.

The special objects of this course are to qualify students who elect it to become original investigators or teachers of the special branches of Science included in it.

Until the close of the first term of Junior year the studies are not specialized, but are the same as in the course in General Science. The special studies in Biology and Geology begin with the second term of the Junior year, and embrace the following subjects:

I. Zoölogy, during Junior and Senior years, including Comparative Anatomy, Osteology, and Embryology; 149 exercises. Professor Macloskie.

II. Comparative Anatomy of the Vertebrates, during Junior and Senior years; 94 exercises. Professor Osborn.

III. Histology, during second and third terms of Sophomore year; 20 exercises. Professor Libbey.

IV. Palæontology; Professor Scott.

Instruction is also given in the following branches of Natural History:

Physiology, during Senior year; 35 lectures. Professor Macloskie.

Geology, during Junior year; 38 lectures. Professor Scott.

Physical Geography, during Senior year; 36 lectures. Professors Guyot and Libbey.

Botany (optional). Professor Macloskie.

I. Zoölogy.

In this branch, which occupies the second and third terms of Junior year, and continues during the whole of Senior year (two or three recitations weekly), Professor Macloskie gives a series of practical exercises with recitations on the different groups of Invertebrated Animals, using as type-forms for study Amœba, Hydra, Planaria, the Earth-worm, Cray-fish, Cockroach, Mussel and Ascidium; Comparative Physiology, using Huxley's and Foster's Text-book, and with the actual examination of the structure and functions of the organs. Other text-books used in this course are Huxley's *Anatomy of Invertebrated Animals*, Brook's *Hand-book of Invertebrate Zoölogy*, Huxley on the *Cray-fish*, Packard's *Zoölogy*, Mivart on the *Cat*, Flower's *Osteology of the Mammalia*, Parker on the *Shoulder Girdle*, Leidy's *Fresh-water Rhizopods of North America*, Balfour's *Comparative Embryology*.

II. The Comparative Anatomy of the Vertebrates.

(1) The Birds; their skeleton, muscles, brain, digestive and vascular systems, as modified for their peculiar habits of feeding and flight. This course is given in Junior year. (2) The Mammals; their Anatomy studied by inter-comparison and by the

light thrown upon it by the Anatomy of Reptiles, Fishes and Birds. This course includes the Elementary Embryology of the Chick and Frog, also the development of the Skull. The works of Huxley, Balfour and Parker are employed. The principal feature of the course is the laboratory work and the constant practice in drawing from the specimens and dissections.

III. Histology.

This subject embraces a study of the normal tissues, and covers as wide a range as possible in the vertebrate kingdom. Special attention is directed to the methods of microscopical work, both in the management of the instrument and in the processes of injection, preserving, staining and mounting specimens, the student being required to do these operations for himself. The laboratory is open at all hours for private investigation on the part of the student, and material is provided.

The regular exercises are held from 2 to 5 P. M. on Wednesday of each week during the second and third terms of Sophomore year. A fee of $5 is charged to cover the expense of mounting material, slides, cover glasses, etc.

IV. Palæontology.

This study extends through the Senior year for those students who elect Biology. It includes practical work in the Museum, the collections of which offer every facility for the thorough pursuit of this subject. Sufficient undescribed material is in the Museum to offer those students who desire to take a Palæontological subject for their graduation Thesis, abundant opportunity to do so.

COURSE IN MATHEMATICS AND MECHANICS.

The required studies in this elective course are the same as in the course in General Science, but after the beginning of the second term of the Junior year, students electing the course in Mathematics and Mechanics will pursue such of the studies named below, and in such order, as may be determined from time to time by the Professor of Mathematics in the School of Science, the Professor of Mechanics and the Professor of Physics.

Rational Mechanics; Mathematical Theory of Fluid Motions; Mathematical Theory of Strength of Materials; Thermodynamics; Higher Analytical Geometry and Calculus; Quaternions; Method of Least Squares; Graphics.

COURSE IN CIVIL ENGINEERING.

This course is designed to fit its graduates for entering the profession of Civil Engineering. It also provides for the instruction, in any of its specialities, of the graduates of this College, and others who may be found suitably prepared.

The requirements for entrance to the Freshman Class are the same as in the course for the Degree of Bachelor of Science. The regular course of study occupies four years, and the degree conferred on graduates is that of Civil Engineer, (C. E.)

STATEMENT OF STUDIES.

Studies Pursued in Common with the Classes in General Science.

The instruction in these studies is the same as stated on p. 81, *et. seq.*, and under the same instructors. Modern Languages (of the Freshman and Sophomore years); English Literature; Rhetoric; Oratory; Psychology or Logic (according to the election of the student); Political Economy; Mathematics; Descriptive Geometry; Shades, Shadows and Perspective; Industrial Drawing; General Astronomy; General Chemistry; Mineralogy (of the Freshman and Sophomore years).

Technical Studies.

The instruction in these studies is given by Professors McMillan, Brackett, Rockwood, Young, Libbey, Willson, Mr. Smith, Mr. Roberts.

In many of the technical studies of the course in Civil Engineering the instruction presupposes a thorough preliminary training of the student in *Mathematics*. A thorough mastery of the ordinary divisions of this science is, therefore, indispensable to the

successful study of such subjects as Mechanics, Physics, etc., which follow it.

Great stress is also laid in this Course on the study of *Graphics* as a Science, both in its general development and in its application to the practice of designers and builders.

RATIONAL AND APPLIED MECHANICS and the THEORY OF MACHINES.—The instruction in these subjects covers a wide field of study, beginning with the general discussion of Motions and the action of Forces and ending with the deduction of practical formulæ relating to the strength or stability of different structures; the power, efficiency and strength of hydraulic, steam and air motors; and to the various problems which arise in the practice of Hydraulic Engineers.

In dealing with these subjects, rigidly mathematical treatment is generally used, and higher analysis is freely employed wherever it is expedient; yet proper weight is given to methods of graphic analysis and the student's attention is especially directed to those problems in which they can be employed with marked advantage.

EXPERIMENTAL MECHANICS.—The instruction in this study consists mainly of laboratory work. Its purpose is to familiarize the student with the physical properties of building materials; to teach him by actual experiment how to conduct tests and to deduce therefrom coefficients of strength, elasticity, etc.; how to determine coefficients of hydraulic flow and resistance; and how to gauge, by the aid of indicators and dynamometers, the power of steam and other motors. Under this head come also problems in the erection of structures.

AN ENGINEERING LABORATORY has been provided for this work. It contains the following experimental apparatus:—A torsional testing machine; a wire and cement tester; various kinds of current meters and water gauges; a Worthington water meter; a contrivance for determining the hydraulic slopes within earthen retaining banks; a flushing tank; a reaction wheel and other minor pieces of hydraulic apparatus; a double acting steam pump; a locomotive link and valve motion, and a ten-horse power compound engine with condenser, indicators, gauges, and a "Prony" brake.

The illustrative apparatus of the Laboratory comprises rail sections and joints; specimens of the products of iron and steel mills and of other building materials; a Sturtevant blower; models of water-wheels, of trestles, and of the details of iron bridge and roof joints, of vaults and arches, and a 25-foot iron model of a single track railroad bridge, with a complete outfit of false-works and other appliances for its erection, designed especially for this College.

THE PLANNING AND CONSTRUCTION OF ENGINEERING WORKS.—This is treated in a course of lectures following the study of Applied and Experimental Mechanics. The topics which receive special attention are given in the list of subjects under the heading *Constructions*, on p. 100.

Great stress is laid on the application of correct principles and formulæ; on the careful inspection, manipulation and preservation of materials, and on the economic features of various designs and the modes of executing them.

A large collection of lantern slides has been provided for illustrating this course. Among the more important photographic studies are a large number of views in detail of the East River Suspension Bridge at different stages of its progress.

PRACTICAL PHYSICS.—In view of the great importance of the problems in terrestrial magnetism in Geodetic surveys, and also in view of the present and increasing demands upon engineers, arising from the application of electricity as a means of illumination and of transmitting energy, provision has been made for the suitable instruction of the student in these subjects, and all candidates for the degree are required to attain a high standard in them.

GEODESY.—The study of *Engineering Field Work* is provided for in the different subdivisions of the course in Geodesy. The structure, adjustment and use of each instrument is made the subject of special attention, and no student is allowed to participate in any extended field operation until he has acquired a certain dexterity in handling the instruments used therein. The instruction in field work, beginning with the measurement of

lines and angles, extends through different kinds of surveys in the order of their complexity, and ends with problems in Higher Geodesy.

A special feature of the course is the stress laid on the collection and verification of field notes by each student, and on their proper use in the preparation of different kinds of plans, maps and charts of surveys. No error is allowed, in field work or in platting, which is not within the limits observed in current practice.

Under this head is given special instruction in *Hypsometry;* the subject being presented by means of lectures and numerous demonstrations in the lecture room and the field.

A very full collection of instruments has been provided for the course in Geodesy. It represents the work of twelve different firms of high repute, great care having been used to avoid the duplication of instruments by the same maker.

The collection consists of a twelve inch Geodesic Transit, a large Plane-Table with telescopic Alidade and a Telemeter; Engineers', Mining and Solar Transits, Wye and "Dumpy" Levels; Surveyors' Compasses, Mercurial and Aneroid Barometers; Sextants, Heliotropes, various forms of Linear Measures, and a large assortment of reconnoitering instruments.

PRACTICAL ASTRONOMY.—This is taught in connection with the course in Geodesy, and the students become familiar with the most approved methods of determining latitude and longitude, and the true meridian, as well as with astronomical operations in general.

TOPOGRAPHICAL DRAWING.—The object of this course is to make the student expert in the execution, in pen work and colors, of finished plans and maps of various kinds of surveys. Except in the necessary preliminary drill, the drawings invariably represent actual surveys made by the different classes. A rigid adherence to the field notes of each survey and a high degree of finish is required in the execution of these drawings.

GRAPHICS.—The instruction in Graphics includes the following branches:

Structure Drawing. A drawing of plan, elevation, end view, sections and details of some railroad bridge, or other

structure of approved modern type, to scale from measurements.

Machine Construction and Drawing. A course of lectures, recitations and practical exercises on the kinematics of machinery, with graphical representation of mechanical movements; theory of link and valve motion; screw propulsion; gearing, including the theory and use of Wills's and Robinson's odontographs; working and finished drawings of machinery, etc. Text-books: MacCord's Kinematics; Warren's Machine Construction and Drawing; reference being also made, during this course, to the following authors: Auchincloss and Forney on Link and Valve Motion; Burgh and Bourne, on Screw Propellers; Reuleaux and Kempe, on Kinematics and Linkages.

Stereotomy. A course on the application of Descriptive Geometry to stone-cutting, practically applied by the student in cutting a voussoir of plaster to given shape by means of templets, patterns, etc., derived from his own drawings. Text-book: Warren's Stone-Cutting.

THESIS.—Every Candidate for the Degree of Civil Engineer is required to prepare and submit to the approval of the Professor of Civil Engineering, a design for, or a review of, some special machine, structure, or process, as a Graduation Thesis.

SYNOPSIS OF COURSE.

FRESHMAN YEAR.

First Term.

MATHEMATICS, ENGLISH, MODERN LANGUAGES, AND INDUSTRIAL DRAWING as in the course in General Science. GEODESY: *The Measurement of Lines;* with common chains and tapes; with city surveyors' chains, tapes and rods; with Geodesic Secondary Base-Line Apparatus; chain surveys and computation of areas. Theory and practice; [18]. *The Measurement of Angles;* with different kinds of compasses; chain and compass surveying, including the simpler methods of determining the True Meridian and Magnetic Declination. Theory and practice; [12].

Second Term.

MATHEMATICS, ENGLISH, MODERN LANGUAGES, PLANE PROBLEMS AND DESCRIPTIVE GEOMETRY, as in the course in General Science.

Third Term.

MATHEMATICS, ENGLISH, MODERN LANGUAGES AND MINERALOGY, as in the course in General Science. TOPOGRAPHICAL DRAWING: Drawings representing the conventional symbols separately and in combination; Lettering; [35].

SOPHOMORE YEAR.

First Term.

MATHEMATICS, DESCRIPTIVE GEOMETRY, CHEMISTRY, MINERALOGY, ENGLISH, MODERN LANGUAGES, as in the course in General Science. GEODESY: Chain and compass survey of an estate; [12].

Second Term.

MATHEMATICS, CHEMISTRY, ENGLISH, MODERN LANGUAGES, SHADES, SHADOWS AND PERSPECTIVE, as in the course in General Science. STEREOTOMY: Structure Drawing; [20]. GEODESY: Problems in the partition of lands; surveys of public lands; structure and adjustments of engineers' field instruments; [15]. TOPOGRAPHICAL DRAWING: Finished map of the farm survey; [35].

Third Term.

MATHEMATICS, CHEMISTRY, ENGLISH, MODERN LANGUAGES, as in the course in General Science. GEODESY: the measurement of angles with Transits and Theodolites; the computation of lines and angles from the field notes of Triangulations; Levelling for Bench Marks, Profiles and Cross Sections; Topographical surveying. Theory and Practice; [28]. TOPOGRAPHICAL DRAWING: Contour Maps; Drawings of Profiles and Cross Sections; [16]. STEREOTOMY: Structure Drawing; [26].

JUNIOR YEAR.

First Term.

MATHEMATICS, PHYSICS, ENGLISH, LOGIC or PSYCHOLOGY, as in the course in General Science. GEODESY: Measurement of heights with Barometer and Thermometer; Hydrography; Surveying with the Stadia and Gradienter; Solar Compass; Town, Plane-Table and Mine Surveying. Theory and Practice; [60].

Second and Third Terms.

PHYSICS, ENGLISH, LOGIC or PSYCHOLOGY, as in the course in General Science. STEREOTOMY: Machine Construction and Drawing; [28]. MECHANICS: Analytical Mechanics of Solids and Fluids; [76]. TOPOGRAPHICAL DRAWING: Hydrographic Charts; Town Maps; Plans and Profiles of Mines; Colored Topography; Maps of Landscape Surveys; [72].

SENIOR YEAR.

First Term.

GENERAL ASTRONOMY AND ENGLISH, as in the course in General Science. APPLIED MECHANICS: Elasticity and Strength of Materials; Theory of Stresses in Roofs and Bridges; [90]. GEODESY: Preliminary and Location Surveys of Routes; Staking out for Construction. Theory and Practice; [30]. STEREOTOMY: Stone Cutting, Theory and Plates; [25]. PRACTICAL PHYSICS: Advanced study of Terrestrial Magnetism and Electro-dynamics; [15]. PRACTICAL ASTRONOMY, as in Elective course of Academic Department; [15].

Second and Third Terms.

GENERAL ASTRONOMY AND ENGLISH, as in the course in General Science. APPLIED MECHANICS: Stability of Walls and Arches; Practical Hydraulics; [49]. MACHINES: General Theory; Hydraulic Motors; Theory of Steam and Air Engines; [60]. CONSTRUCTIONS: Materials of Structures; Dressing and

Preservation of Materials; Foundations; Details of Roofs and Bridges; Construction of Roads, Railroads, Canals and Tunnels; Water Supply and Drainage; Heating and Ventilation; [80]. TOPOGRAPHICAL DRAWING: Preliminary and Final Drawings of Routes; [25]. GEODESY: Higher Geodesy; [15]. PRACTICAL ASTRONOMY, as in Elective course of Academic Department; [15]. PRACTICAL PHYSICS: Advanced study of Terrestrial Magnetism and Electro-dynamics; [15].

NOTE.—It will be noticed that the above list of studies does not provide for regular instruction in the Modern Languages after the Sophomore year. It is, therefore, necessary to explain that a partial equivalent for such instruction has been provided by the use of French and German books of reference in some of the technical courses of the Junior and Senior years.

EXAMINATIONS, STANDING AND GRADUATION.

EXAMINATIONS.

Regular Examinations ordinarily take place at the end of a term; each class being examined in the studies of the term. Occasionally, when a course of study is finished before the close of a term the examination takes place when that study is completed; but such examinations are not allowed to interfere with the regular exercises in other studies.

Examinations are for the most part conducted in writing, but in certain subjects are wholly or partly oral. Private examinations are not allowed except in extreme cases, and by special permission of the Faculty. Absence from an examination, except for reasons of absolute necessity, will be regarded as a serious delinquency, and a subsequent examination will not be granted except by a vote of the Faculty.

Regulations Concerning the Removal of Conditions.

The minimum grade for passing examinations is sixty in every department, the maximum grade being one hundred.

A student whose grade is below fifty in more than two departments, shall be dropped from his class.

Other students who have been conditioned, or who, from any cause, have not passed the examinations in the studies of any department, will meet in the old Chapel, on the second day of the following term, at 10 A. M., prepared for an immediate examination in those studies.

Those who then fail may, by permission of the Faculty, have another examination, not later than the end of the first month of the term. Of the students who are still found deficient, only those who have shown great industry during the term in which the re-examinations were held, and who, in

the opinion of the Faculty, are able to keep up with their respective classes, may be allowed to continue with the same, until the close of the college year.

All conditions standing against a student at the end of the college year must be removed within a week after the opening of the next term. Failing to remove such conditions, the student will be required at once to join the next lower class.

STANDING.

The results of the term examinations are combined with those of the recitations to decide the relative standing or grade of the student during the term. In computing grades, each study, elective or required, is estimated relatively to the others according to the number of hours which it occupies in the weekly schedule of lectures and recitations. The conduct of the student and his attendance also affect his standing. The maximum grade in each department is one hundred; the minimum, or passing grade, is sixty. A student whose grade, as determined by the combination of his examination and recitation marks, falls below sixty, is conditioned, and in order to continue with his class must be re-examined. A report of the standing of each student is made to his parent or guardian by the Registrar of the College at the close of the first term and at the end of the year. The last report gives the student's standing for the year.

The final grade of a student is calculated from all the grades received by the student during his College course.

GRADUATION.

Students who have fulfilled the requirements of the Undergraduate Courses, passing satisfactory examinations in all their studies and presenting an acceptable graduation Thesis, are ordinarily recommended by the Faculty for the Degree attached to the course they have pursued, and if the recommendation is approved by the Trustees they receive diplomas signed by the President and the Clerk of the Board of Trustees.

The graduation Thesis will be publicly read and defended by the student during Commencement week.

GRADUATE COURSES

IN THE

ACADEMIC AND SCIENTIFIC DEPARTMENTS.

Provision has been made for courses of instruction open to resident graduates of this and other Colleges, under the following regulations :

Every instructor in the College shall be at liberty, with the leave of the Faculty, to give instruction to graduates. He shall meet with his class for at least one hour a week, and not more than three hours a week during the Academic year, and shall require the members of his class to undergo rigid examinations on the course pursued.

Each graduate student attending instruction regularly, and passing the examinations, is entitled to a certificate stating what he has done, signed by the President in behalf of the college.

Students by pursuing these courses may also qualify themselves for the degrees, Master of Science, Doctor of Science, Doctor of Philosophy, according to the regulations prescribed under *Doctor's and Master's Degrees.*

Each graduate student shall pay twenty-five dollars for every course of instruction that he enters requiring an hour per week (provided no student shall pay more than an undergraduate), and shall defray whatever expense may be incurred by the use of instruments and materials employed by him. This charge may be remitted in whole or part where the circumstances of the student require it. No fees will be required of graduates of this College for any of the undergraduate courses of lectures or instruction which they may wish to take.

Arrangement for the graduate courses should be made by application to the individual instructors.

Graduate courses in the following subjects are announced for the present year : Contemporary Philosophy, Plato and his

Philosophy, Latin, Sanskrit, Physics, Higher Mathematics, Theoretical Astronomy, Biology. The above courses are conducted by advanced lectures or instruction. In 1884-5 a course in English and American Literature will be given (see below); there will also be a course in Historical Methods and Historical Systems.

Opportunity is also offered to graduates for work in the following subjects in connection with the regular undergraduate courses: Anglo-Saxon, English Literature, Psychology, History of Philosophy, Geology, Mineralogy, Biology, Physics, Practical Astronomy, Analytical and Applied Chemistry, Assaying, Topography.

GRADUATE COURSES.

Contemporary Philosophy.

In this class, conducted by the President, there is a discussion of the doubts and difficulties started in speculative philosophy in the present day. I. In Metaphysics: Are there First Truths—or is all Knowledge derived from Experience? Under this head the philosophies of Locke, Berkely, Hume and Kant are stated and critically examined. II. In Physical Science: What is the Nature and what are the Limits of Law and Development? III. In Ethics: Are Conscience and Morality Generated by Circumstances, or is there an Inherent Distinction between Good and Evil? Under this head there is a criticism of Herbert Spencer's Philosophy, as culminated in his Ethics. IV. In Cosmogony: What is our World? Optimist? or Pessimist? or what? In this course, after every two lectures, the President presides at a discussion.

Plato and His Philosophy.

This course, conducted by Professor Orris, is on the writings and philosophy of Plato, as follows: Plato's Republic, alternating with his Theatetus; Analysis of his Higher Dia-

logues; Lectures and Dictation, on his Philosophy and Teachings; Instruction in the Language.

N. B.—In 1884–5 there will be a number of graduate courses in Philosophy.

Latin.

Professor Packard reads with a graduate class, selections from the following Latin works: Cicero's philosophical writings, Seneca's Moral Epistles, Tertullian and Augustine; or Early Sources of Roman Law.

English and American Literature.

This course is in preparation by Professor Murray for the year 1884–5, and will comprise lectures on the following subjects:

1. Comparative Literature.
2. Dramatic Literature:
   (a) The Plays of Marlowe;
   (b) Shakspeare's Historical Plays;
   (c) The Comedies of Ben Jonson.
3. American Literature.

Sanskrit.

This course, conducted by Professor Winans, includes the Literature of the Language and its bearing upon Philology and Comparative Grammar. Special attention is paid to the latter. The various phenomena of the language, its roots, forms, inflections, are considered in detail in their relations to those of other Aryan tongues. The following is an outline of the early stages of the course: Bühler's Leitfaden für den Elementarcursus des Sanskrit, a series of graded lessons on the plan of Greek and Latin first lessons; reading of several books of the Nalopâkhânam, an episode in the great Hindoo epic, the Mahâbhârata,—with review of Sanskrit Grammar, (Whitney's); next, selections from the Hitopadeça. Two exercises a week. Members of the Junior or Senior class may pursue this course as an optional study.

Physics.

The courses are similar to those of the Senior year, but more extended and exhaustive in their character. Professor Brackett and Mr. Magie conduct this course.

Higher Mathematics.

There are at present three graduate courses in Mathematics, conducted by Dr. Halsted, as follows :—One in the advanced Calculus with Definite Integrals and Modern Applications of the Calculus, a second in Determinants and Quaternions, and a third on the Theory of Equations and Modern Algebras.

Astronomy.

This course is conducted by Professor Young and Mr. McNeill. It consists of :

(a) Practical Astronomy—the same as in the Senior elective, previously described in the course of study of the Academic Department. This is open to such graduates as did not take it in their College course.

(b) Theoretical Astronomy—one hour weekly through the year. This course consists in the reading of Watson's Theoretical Astronomy, supplemented by selections from Oppolzer and Klinkerfues, and includes the calculation of the orbit of a planet or comet from actual observation.

Biology.

A thorough advanced course in Biology has been established in connection with the Geological, Zoölogical, Botanical and Chemical departments, the objects in view being (1) to foster a spirit of original research, (2) to qualify advanced students to become teachers. This course is open to College graduates, also to students presenting diplomas from recognized medical schools. After the student has pursued this course in full and passed at the close a thorough examination in the various subjects, he is entitled to the degree of Master of Science ; he is also entitled to compete for the E. M. Biological Fellowship (see

page 115). This course is open also to students who are not qualified to become candidates for the degree, but who possess sufficient elementary knowledge to profit by the instruction.

The following subjects of instruction are arranged for:

Professor Macloskie—1. Anatomy and Embryology of the Higher Invertebrates. II. Vegetable Morphology and Histology.

Professor Cornwall—Physiological Chemistry.

Professor Libbey—I. The Microscope and Microscopic Technology. II. Histology. III. Deep Sea Soundings and Dredging; recent methods and results.

Professor Osborn—I. Comparative Anatomy of the Vertebrates. II. Elements of Embryology.

Professor Scott—I. Vertebrate and Invertebrate Palæontology. II. Advanced Embryology.

These courses are of a comprehensive and elastic character, and, according to the requirements and wishes of different students, include much laboratory work under the supervision of the instructors. At the close of the first term, the student may select a department of special study for his Thesis, which must present the results of original work.

THE COLLEGE OF NEW JERSEY.

The College originated by Royal Charter under President Dickinson in 1746. A second more ample charter was granted in 1748. After the War of the Revolution, the charter was confirmed and renewed by the Legislature of New Jersey.

The College embraces a Board of Trustees and a Faculty of Instruction with certain additional officers employed in the administration of affairs. The undergraduate Societies and Alumni Associations, though not strictly parts of the organization of the College, are fostered by it, and coöperate with it.

The Corporation is styled "The Trustees of the College of New Jersey." By its charter it holds and administers the property of the College, appoints the President and Faculty, makes laws for the government of the Institution, and confers the degrees. The Board is a self-perpetuating body, composed of twenty-seven members, with the Governor of the State as President *ex officio*, or in his absence the President of the College.

The Faculty, consisting of the President, the Professors, and Tutors, conducts the instruction and discipline of the College aided by Instructors and Lecturers.

DOCTOR'S AND MASTER'S DEGREES.

Master of Arts.

The degree of A. M. may be conferred two years after graduation, upon any Bachelor of Arts who shall have devoted one of the years exclusively to study in the College under the care of the Faculty, passing rigid examinations upon the studies pursued; or, who shall have taken at least one graduate course each year for the two years and passed satisfactory examinations upon his work.

The same degree may be applied for, three years after graduation, by any Bachelor of Arts who is pursuing one of the learned professions, (including teaching), or who, on or before May 1st, of the year in which he seeks the degree, shall have submitted to a committee appointed by the Board of Trustees, a satisfactory paper, literary, philosophical or scientific.

Master of Science.

Bachelors of Science who shall have devoted one year in this College exclusively to the study of such of the following subjects as the Faculty shall prescribe, and who shall have shown satisfactory proficiency therein by Dissertations and Examinations, may apply for the degree of Master of Science (M. S.) The prescribed subjects are:—*Biology*, *Mathematics*, *Rational and Applied Mechanics*, *Practical Astronomy*, *Applied Chemistry*, *Qualitative Analysis*, *Quantitative Analysis*, *Physics*, *Mineralogy*, *Drawing*, *Modern Languages*.

Any Bachelor of Arts, who after examination may be found to be prepared to pursue a graduate course in Science, may become a candidate for the Degree of Master of Science on the same conditions as a Bachelor of Science.

Special Regulations for the Graduate Course in Biology.

1. The Courses leading to a Degree are open only to graduates of this and other colleges; or to students presenting diplomas from recognized medical schools. Other students may attend the Lectures and Laboratory work, but will not be eligible for a Degree.

2. At the close of the first term, the student may select a department of special study for his Thesis. This Thesis should present the results of original work pursued under the direction of the Instructor. If the student pass all his examinations at the close of the year, and his Thesis be satisfactory to the Board of Instructors, he will be entitled to the degree of Master of Science (M. S.). Attached to the Diploma will be a statement that the Degree has been awarded for proficiency in Biology.

3. The Theses which are accepted as giving title to a Degree on the recommendation from the Board of Instructors, will be published in the Bulletins or Memoirs of the E. M. Museum.

Doctor of Philosophy.

A Bachelor of Arts who has devoted all his time to a two years graduate course in the College, taken a prescribed course of special reading, passed a rigid examination on subjects studied, and presented a thesis giving evidence of original research and high attainment, may apply for a degree of Doctor of Philosophy.

Doctor of Science.

A Bachelor of Arts or of Science, who has devoted all his time to a two years graduate course of scientific studies in the College, passed rigid examinations on the subjects studied, and presented a thesis containing the results of original research, may apply for the degree of Doctor of Science.

Honorary Degrees.

The Degrees of Doctor of Divinity (D.D.) and Doctor of Laws (LL.D.) are conferred solely *honoris causa;* the other degrees above named, excepting only the degree of A. B., are also sometimes conferred in the same manner.

FELLOWSHIPS, PRIZES AND COMPETITIVE SCHOLARSHIPS.

Besides the degrees and honors conferred in the regular course, annual Fellowships, Prizes and competitive Scholarships* are offered as special incentives to study, in the classes or departments with which they are connected.

Only matriculated students who are candidates for a degree are admitted to the competition for Fellowships, Prizes and Scholarships, and none are admitted to such competition who have failed to pass satisfactorily their last preceding examination in any of the departments.

No member of any class is allowed to compete for more than one of the Fellowships or Scholarships offered to that class.

The names of the Fellows, Prizemen and Scholars of each year are included in the Honor List for the year.

FELLOWSHIPS.

Every competitor must have been a member of the College in full standing for at least two Academic years previous to the Fellowship examinations.

Every Fellow obtaining any one of the $600 Fellowships must devote his whole time for one year to study in the department for which the Fellowship is provided, under the direction of the Professors in that department. He must reside in Princeton, and pass two rigid examinations on his work, unless by a vote of the Faculty he be allowed to study at an approved foreign University, in which case he shall from time to time furnish written reports of his work to the Professors in his department. The result of every examination and the reports of work done abroad shall be immediately reported to the Faculty. If resi-

*For Endowed Scholarships see page 131.

dent in Princeton, he shall be allowed to occupy free of cost in one of the College buildings, a room assigned to him by the College authorities. He shall be regarded, whilst occupying such place, as a resident officer of the College, and he shall when called on, perform such duties in the department to which he belongs as may be assigned to him by the President at the request of the Professors in that Department.

THE CHANCELLOR GREEN MENTAL SCIENCE FELLOWSHIP.

This Fellowship, originally founded in 1870 upon the annual payment of $600 by the late ex-Chancellor Henry W. Green, was permanently endowed in 1878 by a bequest of $10,000 in his will.

The sum of $600, to be paid quarterly, will be awarded to the member of the Senior Class who may write the best essay on *The nature and extent of a priori principles, with special criticism of the Evolution Theory of Conscience*, (to be given in on, or before, June 1), and who may stand highest at a special examination to be held in June, on the following subjects:

A general knowledge of the Philosophies of Plato, Aristotle, Descartes, Locke, Leibnitz, Hume, Kant, and Hamilton. Cicero De Officiis, Chapter *De Contentione Honesti et Utilis*. Theoretical Ethics. Psychology and Metaphysics (McCosh's *Intuitions*, Parts I., II., III., Book 1). The Syllogism. For the year 1885 the subject of the Essay will be *The Psychological Utilitarianism of Herbert Spencer*.

THE CLASS OF 1860 EXPERIMENTAL SCIENCE FELLOWSHIP.

This Fellowship was founded in 1870 upon the sum of $10,000 subscribed by the Class of 1860. A deficiency of income, resulting from the depreciation of the value of the securities in which the principal was invested, and the lowering of the rate of interest, is paid, by the consent of the donor, from the income of the Magee Professorship of Mining and Engineering, founded by George J. Magee, Esq,, of the Class of 1860.

The sum of $600, to be paid quarterly, will be awarded to the member of the Senior Class who may stand highest at a special examination, to be held in June, on the following sub-

jects, viz: 1. Theory of Electricity and Magnetism. 2. The Tertiary Age, its physical geography, and life system, with special reference to the Mammals; the connection between modern and tertiary faunas and the present geographical distribution of Mammals as compared with that of Tertiary times. 3. Table Salt; its sources, production, uses and especially its relations to applied chemistry.

THE J. S. K. MATHEMATICAL FELLOWSHIP.

The J. S. K. Fund was established in 1873 upon the sum of $11,000, since increased to $14,000, given by a gentleman in New York, $600 of the income of which is devoted to this Fellowship, and $200 to the Freshman First Honor Prize.

This sum of $600, to be paid quarterly, will be awarded to the member of the Senior Class who shall stand highest at a special examination to be held in June, on the following subjects: *Analytical Geometry; Differential and Integral Calculus.*

THE BOUDINOT FELLOWSHIPS.

These Fellowships are founded upon a bequest of the late Dr. Elias Boudinot, of New Jersey, and yield each the annual sum of $250.

THE HISTORICAL FELLOWSHIP.—The sum of $250 to be paid quarterly, will be awarded to the member of the Senior Class who shall write the best essay on *The Transition in Europe from Ecclesiastical to Secular Politics* and pass the best examination in June next on *The Thirty Years' War.* The essay to be presented on or before June 1.

The general subject of examination in 1885 will be *The Age of Louis XIV.*, and the essay is to be on *The Influence of France in German and English Politics during the Eighteenth Century.*

The Fellow shall from time to time during the following year, as may be required by the Professor of History, give evidence by written papers that he is pursuing an approved course of historical investigation.

THE MODERN LANGUAGE FELLOWSHIP.—The sum of $250, to be paid quarterly, will be awarded to that member of the Senior Class who shall pass the best Examination in June, on the following subjects:

A comprehensive knowledge of both the French and German descriptive Grammars. The history of either of these languages, and of their literature. Reading at sight of any given author of the Classical or Recent Period. An essay of not less than four pages (foolscap) in one of these languages. The examination will be conducted both orally and in writing.

The Fellow shall from time to time during the following year, as may be required by the Professor of Modern Languages, give evidence by written papers that he is reading such a course as the said Professor may approve.

THE E. M. BIOLOGICAL FELLOWSHIP.

The sum of $600, to be paid quarterly, will be awarded to that student who shall stand highest at a competitive examination on subjects assigned by the Professors of the Biological department.

The competition for this Fellowship will be open to any member of the Senior Class in either the Academic or Scientific department, or to any College graduate who shall have pursued, during the preceding year, the graduate course in Biology at Princeton, and who shall, in the opinion of the examiners, be deemed competent to pursue the subject advantageously.

This Fellowship conveys with it the use of a table in the National Seaside Laboratory at Wood's Holl, Mass., together with all the facilities afforded for the collection and study of animal life during the season favorable for such investigations. In the winter months following this laboratory work the Fellow will pursue his studies at Princeton, and will be required to prepare and submit a thesis embodying the results of his summer researches.

The examination for this Fellowship in 1884 will be held in June upon the following subjects:

(*1*) *The Morphology of the Crustacea.* (*2*) *The Embryology and Anatomy of the Worms.* (*3*) *The Structure of the Vascular Cryptogams.* (*4*) *The Comparative Anatomy of the Fishes.* (*Huxley's Text-Book.*) (*5*) *The Embryology of the Fishes.* (*6*) *The Histology of the Digestive Tract.*

PRIZES AND COMPETITIVE SCHOLARSHIPS.

THE LYNDE PRIZES.

Three prizes—one of $130, one of $120, and one of $100—the income of $5,000, contributed by Charles R. Lynde, Esq., will be awarded by a committee appointed by the Faculty, to the three successful competitors in a debate on the Monday evening preceding Commencement. The competition will be between six members of the Senior class—representatives of the Literary Societies—selected by Committees appointed by the Societies respectively from their own members in the Faculty.

THE BAIRD PRIZES.

Through the liberality of Charles O. Baird, Esq., the following prizes, representing the income of $6,000, will be given to those who excel in the Oratorical Exercises of the Senior class, viz.: The Baird Prize of $100 to the best speaker of those who, during the last three years of the College course, have ranked among the first six writers in any two of the three departments of English Literature, Rhetoric and Oratory; a prize for Oratory of $50 to the best speaker exclusive of the Baird Prizeman, of those who, during the same time and in the same departments, have ranked among the first twelve writers; a Prize for delivery of $30 to the best speaker exclusive of the two just mentioned; also a prize for Poetry of $50; and two Prizes of $40 and $30 respectively for the best and the second best written Disputations.

THE CLASS OF 1859 PRIZE.

The interest of $2,000, given by the Class of 1859, will be awarded to the member of the Senior Class who shall write the best essay on *The Poetry of Shelley*, and pass the best examination on *The Play of Othello*. The essay must be handed in on, or before, June 1, and the examination will be held in June.

N. B.—The subject of the essay for the Class of 1885 will be *Thomas Carlyle*.

SCIENCE AND RELIGION PRIZE.

A medal of the value of $100 (or its equivalent in money), will be awarded to that member of the Senior Class who shall pass the best examination in the department of the Harmony of Science and Revealed Religion, and write the best essay on *The Scientific Evidences of Revealed Religion.*

THE GEORGE POTTS BIBLE PRIZES.

The yearly interest of $1,000, given in 1867 by Mrs. Sarah A. Brown, expended in the purchase of two copies of Matthew Henry's Commentary on the Bible, will be presented to the two best Biblical scholars of the Senior Class at the end of their College course.

THE LYMAN H. ATWATER PRIZE IN POLITICAL SCIENCE.

The class of 1883 voted to establish a prize to be designated as above. The offer was accepted and the prize authorized by the Board of Trustees. Only a part of the sum necessary has been secured, and no prize can be announced for the current year. It is expected, however, that the endowment will be completed and the prize awarded in 1885.

JUNIOR ORATOR MEDALS.

Four gold medals, or books of equal value, will be awarded by a committee appointed by the Board of Trustees, to the four successful competitors in an Oratorical Contest on the Monday evening before Commencement. The competition will be between eight members of the Junior Class—four from the Cliosophic and four from the American Whig Societies—selected by committees appointed by the Societies respectively from their own members in the Faculty.

THE MACLEAN PRIZE.

The Maclean Prize, consisting of the sum of $100, will be given to that one of the Orators chosen by the Literary Societies from the Junior Class who shall on the Monday evening before Commencement pronounce the best English Oration.

The Committee of Judges will be composed of the Professor of Rhetoric and two graduates of the College appointed by the Board of Trustees.

DICKINSON PRIZE.

The Dickinson Prize, founded by John Dickinson, Esq., of New Jersey, in 1782, consisting of a medal of the value of $60 (or its equivalent in money), will be awarded to that member of the Junior Class who shall write the best dissertation upon the subject of *Recent Agnosticism*. The dissertation to be presented on or before June 1.

THE WOOD SCHOLARSHIP.

The sum of $150, the income of a legacy of Dr. George B. Wood, will be awarded to the member of the Junior Class who receives the highest grade for the Junior year.

THE STINNECKE SCHOLARSHIP.

The Stinnecke Foundation was established in 1870 by the will of the late Henry A. Stinnecke of the Class of 1860, and was supplemented by a bequest received in 1876 from his aunt, Miss Maria Stinnecke. The income is divided between the Stinnecke Scholarship of $500, and the Maclean prize of $100. Owing to the suspension of the payment of interest on the securities the Scholarship and Prize have been suspended for several years, but the fund will be reëstablished by July, 1884.

The Stinnecke Scholarship, of the annual value of $500, tenable during the College course, unless forfeited by neglect of study, "will be given to that person who, having entered the Sophomore Class, shall pass the best examination at the opening of the session in September, 1884, in the Odes of Horace, the Eclogues of Virgil, and the Latin Grammar and Prosody, as well as the Anabasis or Cyropœdia of Xenophon and the Greek Grammar." Students of the College who have been members of the Freshman Class, as well as those entering the Sophomore Class, will be admitted to such examination. The committee of examiners are appointed by the Trustees.

THE CLASS OF 1861 PRIZE.

The interest of $1,200, given by the Class of 1861, will be awarded to that member of the Sophomore Class who shall pass the best examination in June next on those portions of the Mathematical course of the Sophomore year which shall be specially designated by the Professor of Mathematics.

THE FRESHMAN FIRST HONOR PRIZE.

A prize of $200, part of the income of the J. S. K. Fund, to be paid in quarterly installments during the following year, will be awarded to that member of the Freshman Class, who having entered said class at the beginning of the College year shall, at the end of such year, be reported to the Trustees by the Faculty as having attained the highest average grade in Scholarship, provided he pursue his studies in this College, and maintain a good standing during the Sophomore year. No student who has been suspended from College, or who has been put upon his last probation, shall be eligible to this Prize.

SOCIETIES.

Literary Societies.

The Cliosophic and American Whig Societies originated early in the history of the College. They are conducted by the undergraduates, but also include in their organization graduates and officers of the college. Both possess halls, containing the rooms for meeting, reading rooms and valuable libraries of over 8,000 volumes each. They both pursue courses of literary exercises, award numerous prizes for orations, essays, and debates, and grant diplomas to their respective graduates.

A generous competition for College honors has always prevailed between them, and they engage annually on the evenings before Commencement in a public debate, and a competition in oratory, by representatives from the two societies. The details respecting the Lynde Debate and the Junior Orations will be found on pages 116-117.

These Societies are considered a part of the educational appliances of the College, and students are advised to join them.

The Philadelphian Society.

This is a Society composed of undergraduates, united by a covenant of mutual religious aid and sympathy. It was founded in the year 1825, and has always been an active and successful agency in promoting the religious life of the College. Devotional

meetings are held on Thursday and Saturday evenings, under its direction, often conducted by members of the Faculty. Murray Hall, the building belonging to the Society, was erected from a bequest left for the purpose by Hamilton Murray of the Class of 1872. It contains, besides the room for worship, a reading room supplied with religious books and periodicals.

The St. Paul's Society.

The St. Paul's Society is an association similar in nature and aim to the Philadelphian, and is intended to be helpful, devotionally and practically, to those students in the College who have been accustomed to the worship of the Protestant Episcopal Church. It has weekly meetings, conducted by the students, and it has commonly had a course of sermons, delivered in Trinity Church, under its auspices.

BUILDINGS.

The buildings centre around Nassau Hall, which dates back nearly to the foundation of the College, having been erected in 1756. One wing of this building is still occupied by students. The central and eastern portions contain the Geological Museums and Lecture room. The School of Science building, the Chancellor Green Library, Murray Hall and several of the dormitories have been erected within the last decade, and the Marquand Chapel, the gift of H. G. Marquand, Esq., of New York, was built in 1882. The Academic lectures and recitations are conducted mainly in Dickinson Hall, while the scientific lecture-rooms and laboratories are principally in the building of the John C. Green School of Science. A majority of the students reside in the six dormitories upon the Campus.

THE CHANCELLOR GREEN LIBRARY.

The College Library began with the College itself, in a bequest of books by Governor Belcher. The first catalogue, printed in 1760, shows that it then consisted of more than twelve hundred volumes. It suffered much during the revolutionary war, and it was burnt, with Nassau Hall, in 1802. The gifts

of many liberal friends soon reëstablished it, and it slowly advanced to 9,313 volumes in 1854. The want of resources for its increase kept it small, till the Elizabeth fund of $50,000 was created by Mr. John C. Green in 1868. When the present library building was erected by him, in 1872–73, the collection contained about 25,000 volumes. Since that time its progress has been rapid, and it now consists of more than 60,000. The liberality of those who represent his estate has permitted an average yearly increase of 5,000.

Perhaps the library is strongest in the departments of Mathematical, Physical, and Natural and Mental Science. But it is rich, also, in Philology and Literature. Few libraries surpass it, in respect to works on the origin and early history of our language, and our race. Generous efforts have been made to enrich it with the serial issues of scientific associations abroad. A collection of books on fine art, soon to be largely increased, may be seen in a separate room. Each Professor nominates books for purchase in his own department.

The arrangement of books upon the shelves is by topics, and a pamphlet elucidating this arrangement is kept on every table and given on application to every student. A subject catalogue of 700 pages is nearly completed. For the present, students are allowed free access to the alcoves. A large collection of books of reference is kept constantly on the shelves, consisting of twenty encyclopedias, seventy periodicals, and the dictionaries of twenty languages.

At the west end of the building is a reading room for the Faculty, furnished with more than fifty periodicals of high character. Students are admitted on application at the desk, and they may borrow the past issues of each periodical when a new number has reached the table.

Library Hours.

The Library is open every secular day: for the delivery and exchange of books from 12 to 1 P. M., and from 2 to 4 P. M.; for the consultation of books from 10 A. M. to 1 P. M., and from 3 to 5 P. M. The use of books is allowed, under the rules, to all the students. Resident graduates have the same privileges in the Library as undergraduates.

MUSEUMS.

The E. M. Museum of Geology and Archæology.

This Museum, occupying the central and eastern wings of Nassau Hall, contains collections which are distributed in three general departments of Geology (including Mineralogy), Palæontology and Archæology. Their arrangement is especially adapted to the purposes of comparative study.

In the GEOLOGICAL DEPARTMENT a special Room contains a unique collection of over 5,000 specimens of erratic boulders and drift materials from Switzerland. There is also a special room devoted to the typical rocks and fossils of the State of New Jersey. A collection of the typical rocks of the State of New York represents the series as described in the Geological survey of that State.

There is in this department a large collection of minerals, containing about 2,600 specimens, left the College by the late Archibald MacMartin, of New York. The perfection of the specimens, and the number of localities represented in each family, make this collection one of special value.

The collections of the PALÆONTOLOGICAL DEPARTMENT fill two large halls, with extensive galleries. The central hall, or Synoptic Room, is especially designed and arranged with reference to the general course of Geology. There are mounted casts of the gigantic reptiles and mammals of the secondary, tertiary and quaternary ages. Around these the characteristic fossils of each of the great ages of life form as many groups, which follow each other in chronological order, while within each group the fossils are arranged according to their zoölogical affinities. The typical fossils selected agree, as far as possible, with those mentioned in Dana's Geology, as characteristic of different geological periods.

The upper or eastern hall contains the main collections for advanced students; on the platform are the skeletons of a Mastodon, an Irish Elk, a Cave Bear, and some of the extinct birds of New Zealand; also the skulls of Uintatherium and Loxolophodon. Surrounding the room is a very perfect collection of vertebrate and invertebrate fossils from Europe and America, illustrating

the vertebrate and invertebrate forms of all the geological epochs. Included in this series are the fine Eocene and Miocene fossils, procured in the West by the various Princeton collecting parties. There is also a series of fossil insects and plants from Colorado. Altogether the number of fossils, not counting duplicates, is 9,000.

ARCHÆOLOGICAL DEPARTMENT.—Here are relics of the Swiss Lake Dwellings, and numerous implements of stone and bronze from Denmark; also several hundred flint instruments from most of the classical localities of the palæolithic and neolithic ages of France.

America is represented in the pottery and human remains of the mound builders, by several hundred specimens of Mexican and Peruvian Pottery, and by a number of recent Indian relics. The interesting ethnological collection of objects, chiefly from Alaska and New Mexico, which Dr. Sheldon Jackson presented to the Theological Seminary of Princeton, has been transferred to this Museum by the Trustees of that institution, with the consent of the donor. The Archæological Gallery contains also a series of models of the Cliff ruins of the Southwest executed under the direction of Dr. Hayden.

Below the eastern Hall are the lecture and working rooms.

Zoological Museum.

The collections forming this Museum have been chiefly made from the endowment fund of the John C. Green School of Science. There have also been many smaller donations to the Museum from time to time. The collections are placed in the large upper hall of the School of Science building, and are at present especially rich in osteological specimens. On the same floor are the Laboratory and working rooms of the Curator of the Museum. The collections of vertebrates include a large number of mounted and disarticulated skeletons of the mammals, reptiles, birds and fishes; also a carefully mounted stuffed series of the birds of New Jersey, and of other districts of North America, besides alcoholic specimens. A feature of the Ornithological collection is the very large number of unmounted bird skins, arranged for purposes of comparative study of the plumage, feet and beak.

Among the invertebrates are a series of Ascidians, Echinoderms, Mollusks, Crustaceans, Insects, Worms, Corals, Sponges, and microscopic preparations of small forms. During the past year the Museum has purchased the H. T. Woodman collection of corals, and has received a supplementary collection presented through Mr. Woodman by an unknown donor; also a series of invertebrate alcoholic forms from the United States Fish Commission through Prof. Baird, and a set of Photographs of tropical scenery from Mr. A. D. Brown. Collections of American and foreign ferns, and Brazilian Lepidopteræ have been presented by Dr. T. Q. Kingsley. New entomological and histological cabinets have also been erected. Every reasonable opportunity for study is offered to students in this Museum, in the way of access to the cases, and use of the adjoining Laboratory.

Herbarium and Botanical Laboratory.

This is on the second floor of the School of Science building, and is arranged as a Museum for the botanical collections, also as a working laboratory for students. The plants are classified according to Bentham and Hooker's *Genera Plantarum*, including specimens from the different sections of the United States, and from Europe and Australia. There are extra specimens for laboratory use, and dissecting and compound microscopes, dissecting instruments, section cutters, models, diagrams, and books of reference.

LABORATORIES AND APPARATUS.

Physical Laboratory and Apparatus.

The Physical Laboratory is fitted up with tables and other arrangements to accommodate about twenty students at once. Besides the appliances usually employed in lecture demonstrations, the cabinet of apparatus contains all the instruments of precision required in the experimental courses.

The following deserve special mention:—A fine balance by Becker, sensitive to one milligramme under a load of twenty kilogrammes. A Cathetometer (Grunow), with scale of one

metre. A dividing engine and comparator (Rogers). A cylinder Chronograph, for all time observations in the laboratory, in electrical communication with the standard clock of the astronomical observatory. A diapason Chronograph (Koenig), for minute intervals of time. Pendulum apparatus, of both Borda's and Kater's forms. A Spectrometer (Fauth), with 18 inch circle reading by microscope to single seconds. Ditto, (Grunow), with smaller circle, reading to 10″. Ditto, (Stackpole), reading to 30″. A number of diffraction gratings (Rutherford), ruled upon glass and speculum metal; to be used with these spectrometers. A large spectroscope, with dispersive power of twelve prisms (Browning). Sir William Thompson's absolute electrometer and quadrant electrometer (White). Lippmann's capillary electrometer. A set of accurate resistance coils, and standard condenser (Elliot). A large number of galvanometers suited to the different requirements of the laboratory. Sets of standard thermometers; apparatus for calorimetric inquiries; photometers, etc.

Chemical Laboratories.

The laboratory and cabinets of the department of General Chemistry are fully equipped for the illustration of the courses in the two branches of General and Applied Chemistry.

There is a laboratory for Qualitative Analysis, with desks for forty-seven students, and another for Quantitative Analysis, with desks for forty students. Attached to the laboratories are the Assistants' rooms, acid room, weighing room and store room, and the laboratories are provided with all of the appliances for a full course in chemical analysis. There is also an Assay Laboratory, with crucible and muffle furnaces. These laboratories are all in the School of Science building, and each student has a desk for his own use, with cupboards and drawers in which he can lock up such apparatus as is supplied to him individually.

Mineralogical Laboratory and Collections of the School of Science.

The laboratory contains desks for twenty-six students, with room for fourteen more desks. Each desk is fitted with gas

connections for blowpipe work in Determinative Mineralogy, and contains a locked drawer for the student's apparatus.

There are three cabinets of minerals. The principal one contains over five thousand specimens, embracing nearly every mineral species. Two smaller cabinets, one with labeled and the other with unlabeled minerals, are provided for practice with the classes, and to these two cabinets the students have free access.

There is also a collection of 240 specimens of typical rocks; together with a large number of Fuess's rock sections; as well as sections from other sources, for the study of Lithology.

The laboratory is provided also with section cutters, grinding lathes, and other appliances for the optical study of minerals and rocks; including a complete Groth's polarizing apparatus, with goniometer; a large Babinet goniometer; Norremberg's polarizing apparatus; Rosenbusch's microscope, and minor apparatus.

An interesting collection of eruptive rocks from Colorado was presented to the mineralogical cabinet by Mr. W. H. Underwood last year.

Histological Laboratory.

This laboratory is in the building adjoining the School of Science. It is fitted to accommodate ten students at a time, each of whom is provided with the requisite instruments, reagents and staining fluids for the study of the various tissues. The microscopes have been selected with a view to convenience in practical work. A private collection of upwards of 600 slides, illustrating the general subject of Histology, is also placed at the disposal of the student, as well as books of reference and American and foreign publications. A fee of $5 is charged to cover material used and general expenses. The laboratory is open at all hours to its regular students.

Morphological Laboratory.

This laboratory adjoins the School of Science building. It is designed for the practical study of Vertebrate Anatomy, with abundant facilities for dissection and experimental work. Be-

sides the ordinary apparatus, there is a chick incubator for Embryological study, and an aquarium containing live Amphibia belonging to the different groups. For comparative study there belongs to the laboratory a collection of disarticulated skeletons of the typical vertebrates, and a number of alcoholic specimens. The laboratory library contains the principal works of reference. There is a fee of $3 for ordinary courses in dissection. The laboratory is open during the day and evening.

ASTRONOMICAL OBSERVATORIES.

The Halsted Observatory.

This is appropriated to scientific work, chiefly in the department of Astronomical Physics. The building is of stone, with a revolving dome, 39 feet in diameter, of iron. The power for moving the dome and its sliding shutter is furnished by a gas engine. The principal instrument is the great equatorial of 23 inches aperture and 30 feet feet focal length, made by the Clarks, of Cambridge. It is provided with all the usual micrometers, spectroscopes and other accessories on a scale proportional to the instrument. The building contains also two clocks and a chronograph. An Edison dynamo-electric machine supplies the electric currents required in spectroscopic investigations.

The Observatory of Instruction.

This establishment is devoted entirely to the use of students, and is fully equipped for its purpose. It possesses an equatorial (by Clark) of 9½ inches aperture, with an unusual complement of spectroscopic and other accessories. It has also a 9-inch reflector; a meridian circle with telescope 4 inches in diameter; two transit instruments with 3-inch telescopes, both of them arranged for use as zenith-telescopes; a 3-inch prime-vertical instrument; a chronograph; two standard clocks, and two chronometers. There are also a number of sextants, and all the other subsidiary apparatus required for carrying out the work detailed on page 60.

GYMNASIUM.

The Gymnasium was built in 1869 by Mr. Robert Bonner and Mr. Henry G. Marquand. It is thoroughly equipped with all the apparatus necessary for a complete physical training. It has hot and cold shower and plunge baths, dressing rooms, bowling alleys, and, besides the main hall, a room for base ball practice. There is also a gallery for visitors. The Gymnasium is open from 7 to 8 A. M., 12 M. to 1.30 P. M., 5 to 6.30 P. M., on every day except Saturday, when it is open from 12 M. to 6.30 P. M. Classes in the use of Indian Clubs and Calisthenics are held every day during the noon and afternoon hours. These exercises are adapted to all grades of strength, and are such as to maintain and improve in health all who take part in them, health being the primary and strength the secondary object of exercise. Special exercise on the various apparatus is under the personal supervision of the Superintendent, who is also at the command of any student for advice in regard to physical development and the laws of health. During the winter term there is an indoor athletic meeting for prizes; in the spring term a gymnastic contest also for prizes, and at Commencement a gymnastic exhibition.

GENERAL COLLEGE ORDERS.

TERMS AND VACATIONS.

The year is divided into three terms or sessions.

The *first* term of the *present* College year (1883–84) began on Wednesday, the 12th of September, 1883, and ends on Wednesday the 19th day of December. The *second* term begins on Wednesday, the 2d of January, 1884, and ends on Wednesday, the 19th of April. The *third* term begins on Wednesday, the 26th of April, and ends on Wednesday, the 18th of June, 1884 —the day of the Annual Commencement.

Students are required to return to College on the first day of each term, and absences from any College exercise at the beginning of a term affect a student's standing more than absences at any subsequent period.

Students are not allowed to leave College during term-time without express permission obtained from the Faculty or officer of the Class to which they belong.

COMMENCEMENT ANNIVERSARIES.

THE ANNUAL COMMENCEMENT takes place on the Wednesday preceding the last Wednesday in June.

THE BACCALAUREATE SERMON of the President to the graduating Class is delivered before the College on the Sunday preceding Commencement.

On the subsequent days preceding Commencement will be held the Class Day Exercises of the graduating Class, the Lynde Prize Debate, the Junior Oratorical Contest, the Reading of Theses by the graduating Class of the School of Science, the Annual Meetings of the Literary Societies, and the Annual Meeting of the Alumni Association of Nassau Hall.

PUBLIC WORSHIP AND RELIGIOUS INSTRUCTION.

Prayers are offered in the Marquand Chapel every week-day morning. In these services, members of the Faculty officiate in turn.

Divine service, under the superintendence of the President, is held in the Marquand Chapel on Sunday, at 11 o'clock A. M., when a sermon is preached once a fortnight by Professor Murray, and on the other Sabbaths by the clerical members of the Faculty.

Religious services are held in the chapel every Sabbath afternoon at 5 o'clock.

Permission to attend divine service elsewhere than in the College, on special occasions, is granted on application to the President. For permission to attend regularly one of the Churches of the town on Sabbath morning, a written request from the parent or guardian of the applicant must be presented to the President.

Religious Instruction.

Biblical Instruction is given during the week, as follows:

To the Senior Class by Dr. Murray: The Development of Doctrine in the New Testament.

To the Junior Class by Professor Ormond: The Book of Acts.

To the Sophomore Academic Class by Professor Orris: John's Gospel in the Greek.

To the Freshman Academic Class by Professors Hunt and West: General Introduction to the study of the Scriptures. The Poetical Books of the Old Testament and Parables of our Lord.

To the Freshman and Sophomore Classes in the School of Science by Professor Macloskie: Typology of the Old Testament, and the Life of Christ.

ATTENDANCE UPON COLLEGE EXERCISES.

The several Classes ordinarily attend three Recitations or Lectures every day, except Saturday, when there are but two College exercises.

Every undergraduate student is required to attend all College exercises in the Chapel, to be present during the lectures

and recitations of his Class, and is to avail himself of the privileges of the Library and Gymnasium upon the conditions and at the hours appointed.

Each student is allowed a certain limited number of absences from chapel and recitations during each term. When a student's absences exceed this gratuity they affect his standing, and when they exceed twenty-five unexcused in one term he becomes liable to such discipline as the Faculty may direct.

PECUNIARY AID.

A limited number of students of good moral character, intellectual ability and promise, needing assistance, are aided in their efforts to obtain a liberal education, by means of endowed scholarships, which discharge the amount of their tuition fees.

Application for admission to these Scholarships, as they become vacant, should be made to Professor Duffield.

The College also possesses a fund given for the purpose of aiding candidates for the ministry of the Presbyterian Church, from which they can receive at least thirty dollars a year each.

Endowed Scholarships.

Friends of the College and some Churches have endowed a number of Scholarships, which are designed to extend the privileges of the Institution to deserving young men needing assistance. Hitherto the sum of $1,000 has been sufficient to found such a Scholarship, but owing to the diminution of the rate of interest, a principal sum of $2,000, or the annual payment of $100 as interest until the principal is paid, is now requisite for an endowment.

Those who are placed upon these Scholarships must be fully prepared for admission to College, and when admitted must conform to its laws and regulations.

The applications for the benefit of these Scholarships, by young men of promise, far exceed the number endowed, and the friends of the College and of education may aid deserving young men, and at the same time increase the current income of the College by adding to this foundation.

LIST OF ENDOWED SCHOLARSHIPS.

1. Matthew Newkirk	$1,000	34. Skidmore	$1,000
2. William Rankin	1,000	35. L. S. Spencer	1,000
3. A. Cresswell	1,000	36. J. D. Lalor	1,000
4. Isaac R. Rankin	1,000	37. Frederick Marquand	1,000
5-7. Roswell Colt	3,000	38. 1st Pres. Ch., Trenton	1,000
8. Musgrave	1,000	39. S. and D. Cameron	1,000
9. J. Cogswell	1,000	40. 2d Pres. Ch., Elizabeth	1,000
10. Henry W. Green	1,000	41. Chas. S. Bayliss	1,000
11-15. James Lenox	5,000	42. Eliza Musgrave Giger	1,000
16. Hugh L. Hodge	1,000	43. James Blair	1,000
17. A. B. Bayliss	1,000	44. Samuel H. Pennington	1,000
18. Henry J. Van Dyke	1,000	45. Aaron Fenton	1,000
19. Dudley S. Gregory	1,000	46. Alanson Trask	1,000
20. Pres. Ch., Peekskill, N. Y.	1,000	47. Withington	1,000
21. John Van Vorst	1,000	48. Newark	1,000
22. Jacob J. Janeway	1,000	49. Aaron Carter	1,000
23. Ladies of Huntington, L. I.	1,000	50-54. Silas Holmes	5,000
24. E. F. Backus	1,000	55. Stephen Colwell	1,000
25. Van Sinderen	1,000	56. John Aitken	1,000
26. N. Norris Halsted	1,000	57. Mrs. P. Bullard	1,000
27. Maclean	1,000	58. Nehemiah Perry	1,000
28. Richard F. Haines	1,000	59. Samuel Hamill	1,000
29. John P. Jackson	1,000	60. Beers	1,000
30. Joseph N. Tuttle	1,000	61. Peter Jacobus	1,000
31. Gertrude N. Woodhull	1,000	62. John Maclean	1,000
32. Nathaniel W. Townsend.	1,000	63. William White	1,000
33. 1st Pres. Ch. of Bridgeton	1,000		

EXPENSES.

The following is the Schedule of the College expenses for 1883-4:

Board, 37 weeks	$ 2.75 to $7 per week.
Washing, 37 weeks	50 cents per week.
†Tuition, Academic	75.00 per annum.
Tuition, School of Science	120.00 per annum.
*Tuition, Special Course in Analytical Chemistry	120.00 per annum.
Tuition, extra for Laboratory Chemistry, Senior Elective	18.00 per annum.
Room Rents (according to location of rooms)	18.00 to $200 per annum.
Fuel Deposit (according to location of rooms)	17.00 to $26 per annum.
Gas Deposit (according to location of rooms)	24.00 to $42 per annum.
†Public Rooms (Library, Gymnasium, &c.,)	28.00 per annum.
Matriculation Fee, payable on entrance	5.00
Graduation Fee, payable third term, Senior year	12.00

The charges for fuel and gas are approximations based upon the greatest amount used. An account of the actual consumption is kept with each room, and the exact charge is adjusted at the end of the year. The charge for fuel includes the cost of kindling, and the labor of carrying coal, making fires, &c.

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*For other Special Courses arrangement will be made upon consultation with the Professor in charge.

†After the present year the Academic Tuition will be $100 and the fees for Public Rooms $25.

Apparatus Deposits.—Students pursuing certain courses in the School of Science are required to make deposits to pay for apparatus injured or destroyed. At the end of the term any excess in favor of the student is placed to his credit on the bill for next session. The deposits in the courses for B. S. are :—Sophomores, first term, $12; second term, $10; third term, $5. Juniors taking any work in Chemical Analysis, second term, $12; third term, $8. Seniors electing the course in Chemistry and Mineralogy, first term, $20; second term, $15; other Seniors taking any work in Chemical Analysis, first term, $15. The deposits in the course for C. E., all payable in the first term, are :—Freshmen, $3; Juniors, $6; Seniors, $4; all of the foregoing being for apparatus in the Engineering Department; also, Sophomores, $5 for the Engineering Department, and $12 for Blowpipe apparatus. Academic Seniors, electing Laboratory Chemistry, will deposit $7, payable in the first term.

ESTIMATES OF ANNUAL EXPENSES.

Attention is specially called to the following approximate estimate of the necessary annual expenses for a student occupying a room in College, without including clothes, traveling or vacation expenses :

	Min.	*Medium.*	*Max.*
Board, 38 weeks at $2.75 to $7	$104	$152	$266
Washing, 38 weeks at 50c. per week	19	19	19
Tuition and Fees	125	125	125
Room Rent	25	60	200
Fuel and Light (Kerosene or Gas)	15	25	50
Books	15	20	25
Hall dues and College Subscriptions	7	25	50
	$310	$426	$735
Deduct for Students on Scholarship	100		
	$210		
Deduct for Candidates for Ministry see page 131	30		
	$180		

College Bills.

All College expenses, including board and washing, must be paid in advance to the Treasurer of the College.

Students are required to call at the Treasurer's office in the course of the first ten days of each session, and to give information as to their place of boarding, &c., so that their bills can be made out. All bills must be paid within the first four weeks of

the session. Failure to comply with this rule shall deprive the student of the privileges of the College until payment is made, unless excused by special vote of the Faculty.

When a student enters College before the middle of a session, he shall pay in full the usual college charges for that session, with the exception of the charges for board and washing; if he enter after the middle of the session, he shall pay one-half. For board and washing he shall pay in proportion to the time.

When a student leaves the College, whether voluntarily or by dismission, before the middle of any session, one-half of the charges for tuition and public rooms for that session shall be refunded. But in the case of temporary absence and subsequent return, although the absence be for more than half a session, no such rebate shall be granted.

When a student is dismissed from College for any cause, the advance deposit for board, washing, fuel and gas, beyond the time of his dismission shall be refunded to his parent or guardian.

When at the end of the first or second sessions the amount of the advance deposit proves to be in excess of the sum required to defray the board, washing or room bills of any student, the excess shall be credited on his bill for the next session. At the end of the College year the amount overpaid for board, washing, room-rent, fuel or gas shall be refunded by the treasurer to the student's parent or guardian.

RULES RESPECTING THE RENTAL AND ALLOTMENT OF ROOMS IN THE COLLEGE BUILDINGS.

1. Whenever a student desires to occupy a room in one of the College buildings, he and his parent or guardian shall be required to sign a room agreement, engaging to pay the rent and charges of said room for the ensuing Academic year, or for the remainder of the current year, as the case may be.

2. The tenure of all rooms so engaged shall be subject to the following conditions as regards damages and repairs, viz.:

(1.) All damage done to a room beyond the ordinary wear and tear shall be made good as soon as possible at the expense

of the occupant. This provision includes the breakage of glass whether by accident or design. The occupant shall employ the proper College workmen and pay the cost of the repairs at once to the Treasurer. (2) The occupants of a room shall deposit with the Curator the sum of twenty-five cents for every key furnished, which amount shall be refunded on the return of the keys.

3. Students now occupying rooms, or to whom rooms shall hereafter be allotted, may have the option of retaining such rooms until the end of their College course, on condition of annually notifying the Treasurer of their intention of retaining their rooms for the following year, and signing a new room-agreement before May 20th; otherwise their rooms will be considered as vacated, and will be included in the annual allotment.

4. Rooms becoming vacant at or near the close of the College year shall be assigned to new occupants, by lot. The members of the Junior and Sophomore Classes who desire a choice shall draw lots first; then the Freshmen. As soon as the drawing is completed the rooms must at once be chosen in order of priority of choice.

5. No student will be entitled to the room allotted him unless the room agreements shall have been signed and returned to the Treasurer before June 10th.

6. New students shall have the choice of any remaining rooms in the order of their application, after admission into College, on condition of immediately signing the room agreement, and depositing with the Treasurer the rent for the next ensuing session.

7. Every student who draws or retains a room is expected to occupy the same, and pay the rent and charges, or his share thereof, until the end of the College year, unless sooner released by the proper authority.

8. A student who expects to be absent on leave for a term may be released from the above obligation, by notifying the Treasurer before the beginning of the term, and by giving up the room; but no abatement or drawback for room rent will be made to any student vacating his room during a session, unless by express direction of the Faculty.

9. Whenever, by any contingency, one of two room-mates is permitted or obliged to cancel his room agreement, the remaining occupant must vacate the room at the end of the current session, unless he agrees to pay the whole rent, or provides a room-mate who shall join him in signing a new agreement for the remainder of the College year. When one or two occupants of a room is a member of the Senior Class, the room shall become vacant when the Senior graduates, and be subject to the provisions of Rule 4; except in cases where the joint occupant has contributed for at least one year.

10. When rooms are vacated during the first or second sessions the rent shall be paid to the end of the session (see Rule 8), at which time the Treasurer shall notify the students who may have registered their names as applicants for vacancies, and the rooms shall be drawn for by them.

11. Exchange of rooms, or substitution of one occupant for another, must be by authority of the Treasurer, and any student moving into a room, without authority *previously obtained*, will be liable to a fine of $10, and be required to vacate the room.

12. No tenant of a College room who is permitted or compelled to vacate such room will be allowed to transfer directly or indirectly any interest in or title to the room.

13. When a student vacates a room he shall immediately remove the furniture therefrom; unless the student to whom the room is assigned elects to purchase the same. In case a sale is agreed upon between the parties, the price to be paid by the purchaser shall be ascertained by deducting from the cost price of the furniture a discount of twenty per cent. per annum for the time the same has been in use by the vendor; provided that the price to be paid for the furniture in a room shall in no case exceed $200. All sales shall be approved by the Treasurer before the same are finally consummated.

14. Students leaving College, or otherwise vacating their rooms, shall be allowed to store their furniture in a room assigned by the College authorities, under the charge of a salesman appointed by the College, where it may be offered for sale. Furniture remaining unsold at the end of three months, if not removed by the owner, will be disposed of at public auction to the highest bidder.

CATALOGUE

OF THE

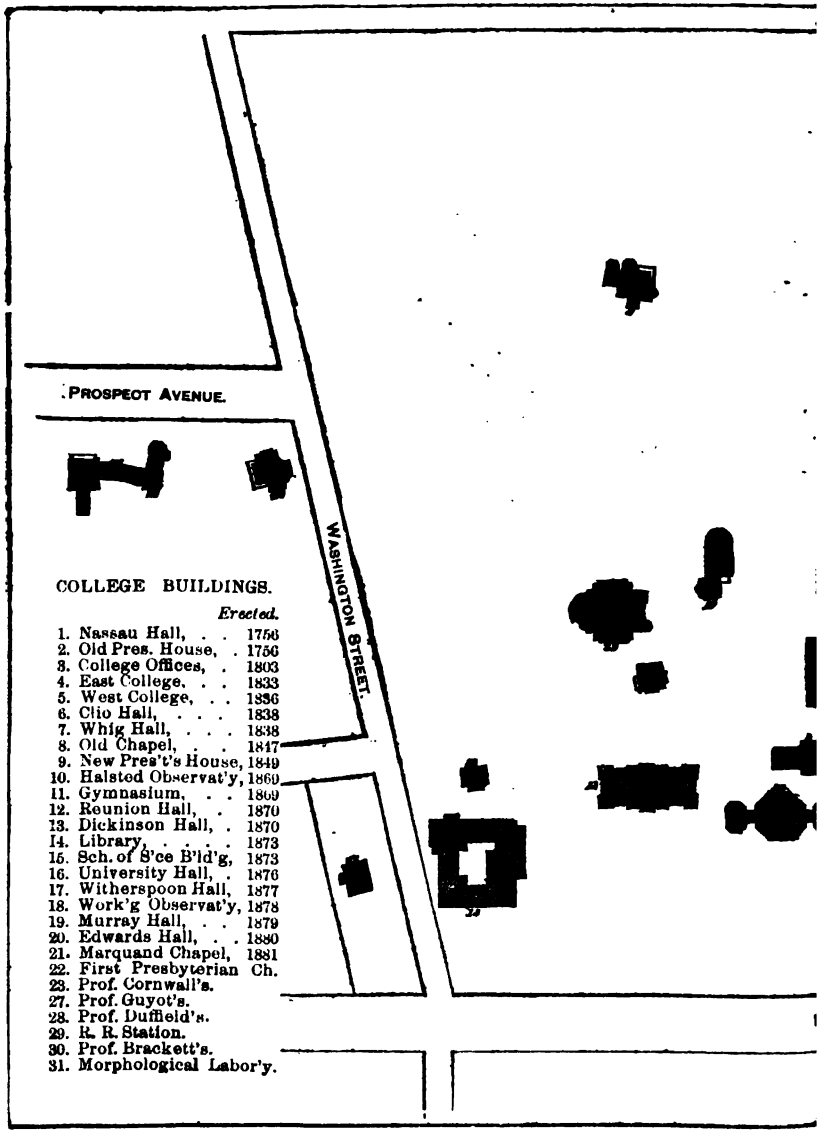
COLLEGE OF NEW JERSEY

AT

PRINCETON

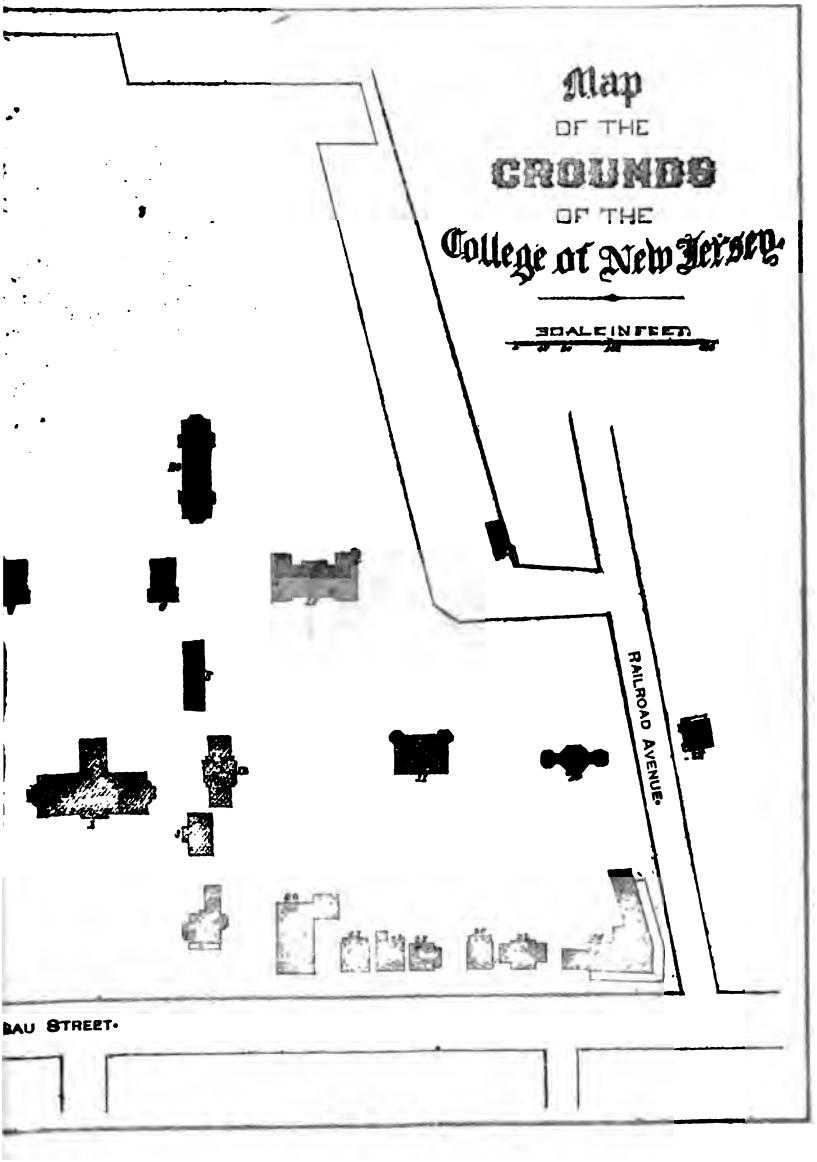
1884--'85

The Princeton Press
1884



COLLEGE BUILDINGS.

		Erected.
1.	Nassau Hall,	1756
2.	Old Pres. House,	1756
3.	College Offices,	1803
4.	East College,	1833
5.	West College,	1836
6.	Clio Hall,	1838
7.	Whig Hall,	1838
8.	Old Chapel,	1847
9.	New Pres't's House,	1849
10.	Halsted Observat'y,	1860
11.	Gymnasium,	1869
12.	Reunion Hall,	1870
13.	Dickinson Hall,	1870
14.	Library,	1873
15.	Sch. of S'ce B'ld'g,	1873
16.	University Hall,	1876
17.	Witherspoon Hall,	1877
18.	Work'g Observat'y,	1878
19.	Murray Hall,	1879
20.	Edwards Hall,	1880
21.	Marquand Chapel,	1881
22.	First Presbyterian Ch.	
23.	Prof. Cornwall's.	
27.	Prof. Guyot's.	
28.	Prof. Duffield's.	
29.	R. R. Station.	
30.	Prof. Brackett's.	
31.	Morphological Labor'y.	


Map
OF THE
GROUNDS
OF THE
College of New Jersey.
SCALE IN FEET
RAILROAD AVENUE.
BAU STREET.

CATALOGUE

OF THE

COLLEGE OF NEW JERSEY

AT

PRINCETON

1884--'85

The Princeton Press:
C. S. ROBINSON & CO., PRINCETON
1884

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CALENDAR.

1884.

Sept. 9—10.	Examinations for admission.
Sept. 10.	First term began. College assembled at 3 P. M. in Marquand Chapel.
Sept. 13.	Conditioned and unexamined students assembled in Old Chapel—Elective Classes enrolled.
Nov. 13.	Stated Meeting of the Board of Trustees.
Nov. 26—Dec. 1.	Thanksgiving Recess.
Dec. 1.	Second Term Electives chosen.
Dec. 9—17.	Examinations. End of first term.
Dec. 17—Jan. 5.	Christmas vacation.

1885.

Jan. 5.	Second term begins.
Jan. 29.	Day of Prayer for Colleges.
Feb. 12.	Stated Meeting of the Board of Trustees.
Feb. 22.	Washington's birthday—Exercises in Old Chapel.
April 8.	End of second term.
April 8—15.	Spring vacation.
April 15.	Third term begins.
May 16.	Last day for renewing room-agreements for '85–6.
May 20—30.	Senior final examinations.
May 30.	Annual allotment of rooms.
June 3—13.	Examinations of the three lower classes.
June 14.	Baccalaureate sermon.
June 15—17.	Commencement Meeting of the Board of Trustees.
June 15.	Class Day—Junior Orations, 7.30 P. M.
June 16.	Reading of Theses by Scientific students—Annual Meetings of Literary Societies—Annual Meeting of Alumni Association—Lynde Prize Debate, 7.30 P. M.
June 17.	CXXXVIII Annual Commencement.
June 18—19.	Examinations for admission, held simultaneously in Princeton and Western cities.
June 18–Sept. 16.	Long vacation.

Sept. 15—16.	Examinations for admission, in Princeton only.
Sept. 16.	First term begins—College assembles at 3 P. M. in Marquand Chapel.
Sept. 17.	Conditioned and unexamined students assemble in the Old Chapel at 10 A. M.
Nov. 12.	Stated Meeting of the Board of Trustees.
Nov. 25—30.	Thanksgiving Recess.
Dec. 23.	End of first term.

1884.

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Professor of Modern Languages and Literature.

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Tutor in Latin.

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LEROY W. McCAY, D.Sc.,
Assistant in Analytical Chemistry and Mineralogy.

CHARLES C. ROBBINS, A.M.,
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ALBERT P. CARMAN, A.B.,
Acting Instructor in Physics.

FRANKLIN C. HILL. PH.G.,
Curator of E. M. Museum.

GEORGE L. NICHOLAS,
Assistant Curator of Zoölogical Museum.

WALTER M. RANKIN, M.S.,
Assistant in Herbarium.

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FREDERIC VINTON, LITT.D.,
Librarian.

HENRY N. VAN DYKE, A.M.,
Registrar.

EDWIN C. OSBORN,
Treasurer's Assistant.

GEORGE GOLDIE,
Superintendent of Gymnasium.

MATTHEW GOLDIE,
Proctor.

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Chancellor Green Fellow in Mental Science.	
HENRY BELL GAYLEY, A.B.,	*Princeton.*
Fellow in Classical Literature.	
ALEXANDER S. ROWLAND, A.B.,	*Princeton.*
Class of 1860 Fellow in Experimental Science.	
ALFRED G. REEVES, A.B.,	*Princeton.*
J. S. K. Fellow in Mathematics.	
JOHN C. MURRAY, A.B.,	*Leipsic.*
Boudinot Fellow in Modern Languages.	
THOMAS J. MCCORMICK, A.B.,	*Leipsic.*
Boudinot Fellow in History.	
REV. JOHN E. PETERS, A.M.,	*Princeton.*
E. M. Fellow in Biological Science.	

GRADUATE STUDENTS.

NAME.	COLLEGE.	RESIDENCE.
Daniel E. Bedinger,[1]	Central,	Richwood, Ky.
George B. Bell,[1]	Rutgers,	New Brunswick, N. J.
John D. Blake,[8]	N. Y. Univ.,	Princeton, N. J.
E. Winslow Brown,[1]	Wooster,	Princeton, N. J.
Lester S. Boyce,[1]	Wesleyan, O.,	Delaware, O.
Albert P. Carman,[20]	Princeton,	Vincentown, N. J.
Frederick G. Coan,[1]	Wooster,	Hudson, N. Y.
Edward E. Clark,[1]	Marietta,	Steubenville, O.
James T. Cooter,[1]	Wabash,	Columbus, Kan.
Frederick S. Curtis,[1]	———	Norwalk, Conn.
Rees Edwards,[1]	Wooster,	Portsmouth, O.
Herman C. Fox,[1]	Muhlenberg,	Philadelphia, Pa.
John M. Fulton,[1]	Wooster,	Dinsmore, Pa.
William P. Fulton,[1]	Wesleyan, O.,	Dinsmore, Pa.
George Gillespie,[1]	Wooster,	Elizabeth, N. J.
Joseph H. Gulick,[23 25 26 27]	Princeton,	Princeton, N. J.
Jno. Grier Hibben,[8]	Princeton,	Peoria, Ill.
B. Lewis Hobson,[1]	Central,	Lexington, Mo.
Samuel V. V. Holmes,[1 8]	Williams,	Albany, N. Y.
Hugh Hughes,[1]	———	Anglesea, Wales.
Richard C. Hughes,[1]	Wooster,	La Grange, Ind.
Wm. Rankin Huston,[1]	Delaware,	Newark, Del.
Alexander M. Irvin,[1]	Centre, Ky.,	Danville, Ky.
Albert E. Jack,[1]	Lake Forest,	Farmington, Ill.
Edgar F. Johnston,[1]	Amherst,	North Jackson, O.
Robert Jones,[1]	Trevecca,	Swansea, Wales.

U. S. Jones,[1]	Wooster,	Newark, O.
Henry M. Landis,[1]	Princeton,	Colebrookdale, Pa.
Wm. M. Langdon,[1 4 5 6 7]	Princeton,	New York City.
John McCoy,[1]	Wooster,	Chillicothe, O.
James L. McKee,[1]	Centre,	Danville, Ky.
Charles T. McMullin,[3]	Princeton,	Glendale, O.
John D. McMillan,[1]	St. Thomas,	Crinan, Can.
Glenroie McQueen,[1]	Allegheny,	Plumer, Pa.
Phillip F. Matzinger,[1]	Calvin,	Clay City, Ind.
Wm. H. Miller,[1]	Lafayette,	Gerrardstown, W. Va.
Ivan D. Mishoff,[1 7]	Princeton.	Looteb, Bulgaria.
Alexander Moffat,[20 22 23]	Princeton,	Princeton, N. J.
J. Leverett Moore,[13]	Princeton,	Orange, N. J.
Russell W. Moore,[23]	Princeton,	Orange, N. J.
Henry A. Mullen,[1]	Highland,	Auburn, Can.
James C. Oehler,[1]	Davidson,	Caldwells, N. C.
Charles A. Oliver,[1]	Univ. of Penna.,	Philadelphia, Pa.
Wm. C. Paden,[1]	Muskingum,	New Concord, O.
Wm. T. Parsons,[1]	Washington, Md.,	Worton, Md.
F. A. C. Perrine,[1 20 22]	Princeton,	Freehold, N. J.
Rev. J. E. Peters,[24 25 26 27]	Princeton,	Princeton, N. J.
John W. Phillips,[28]	Princeton,	Lawrenceville, N. J.
John J. Ralston,[1]	Princeton,	McVille, Pa.
Alfred G. Reeves,[1 5 20 22]	Princeton,	Millville, N. J.
Lewis G. Rogers,[3]	Williams,	Albion, N. Y.
Wm. L. Rogers,[22 23]	Princeton,	Princeton, N. J.
A. S. Rowland,[22 23]	Princeton,	Princeton, N. J.
Edgar W. Russell,[1]	———	New York City.
James Simmons, Jr.,[1]	Beloit,	Lake Geneva, Wis.
Wm. F. Skinner,[1]	Iowa State,	Cambridge, N. Y.
Thomas Thompson,[1]	Knox,	Petrolia, Can.
Hartley T. Updike,[3]	Princeton,	Pennington, N. J.
George L. VanAlen,[3]	Princeton,	Danville, Pa.
Alexander Waddell,[1]	Univ. of Penna.,	Philadelphia, Pa.
Wm. A. Waddell,[1]	Union,	White Lake, N. Y.
Milton N. Wagner,[1 8]	Dickinson,	Carlisle, Pa.
Elmer B. Waller,[1 3]	Union,	Seneca Falls, N. Y.
Wm. S. Watson, Jr.,[1]	New York City,	New York City.

James M. Wilson,[1]	Princeton,	New Wilmington, Pa.
Oscar F. Wisner,[1]	Wooster,	Wooster, O.

GRADUATE STUDENTS, ... 66

1. Cont. Philosophy, PRESIDENT.
2. Hist. of Philosophy, PRESIDENT.
3. Plato's Philosophy, PROF. ORRIS.
4. Science and Relig., PROF. SHIELDS.
5. Ethics, PROF. PATTON.
6. Comp. Politics, PROF. SLOANE.
7. Const. and Int. Law, PROF. JOHNSTON.
10. Latin, PROF. PACKARD.
11. Eng. Literature, PROF. MURRAY.
12. Anglo-Saxon, PROF. HUNT.
13. Sanskrit, PROF. WINANS.
20. Higher Mathematics, MR. DANIELS.
21. Astronomy, PROF. YOUNG.
22. Physics, PROF. BRACKETT.
23. Lab. Chemistry, PROF. CORNWALL.
24. Palæontology and Embryology, PROF. SCOTT.
25. Biology, PROF. MACLOSKIE.
26. Comp. Anatomy, PROF. OSBORN.
27. Histology, PROF. LIBBEY.

ACADEMIC DEPARTMENT.

JAMES McCOSH, PRESIDENT, *Psychology, History of Philosophy, Biblical Instruction.*
JAMES O. MURRAY, DEAN, *English Language and Literature.*
JOHN T. DUFFIELD, *Mathematics.*
J. STILLWELL SCHANCK, *General and Applied Chemistry.*
HENRY C. CAMERON, *Greek Language and Literature.*
CHARLES W. SHIELDS, *Harmony of Science and Religion.*
WILLIAM A. PACKARD, *Latin, Science of Language.*
JOSEPH KARGÉ, *Modern Languages and Literature.*
CYRUS F. BRACKETT, *Physics.*
HENRY B. CORNWALL, *Laboratory Chemistry.*
GEORGE MACLOSKIE, *Botany, Zoölogy, Anatomy of the Invertebrates.*
CHARLES A. YOUNG, *Astronomy.*
S. STANHOPE ORRIS, *Greek Language and Literature.*
CHARLES G. ROCKWOOD, JR., *Mathematics.*
THEODORE W. HUNT, *Rhetoric and English Language.*
WILLIAM M. SLOANE, *History, Political Science.*
GEORGE L. RAYMOND, *Oratory and Æsthetic Criticism.*
SAMUEL R. WINANS, *Greek, Sanskrit.*
WILLIAM LIBBEY, JR., *Physical Geography and Histology.*
WILLIAM B. SCOTT, *Geology, Palæontology.*
HENRY F. OSBORN, *Anatomy of the Vertebrates.*
WILLIAM C. PRIME, *History of Art.*
ALLAN MARQUAND, *History of Art.*
ANDREW F. WEST, *Latin.*
ALEXANDER T. ORMOND, *Logic.*
ALEXANDER JOHNSTON, *Jurisprudence and Political Economy.*
FRANCIS L. PATTON, *Ethics.*
HENRY B. FINE, *Mathematics.*
J. LEVERETT MOORE, *Latin.*
MALCOLM McNEILL, *Practical Astronomy.*
WILLIAM F. MAGIE, *Physics.*
ARCHIBALD L. DANIELS, *Higher Mathematics.*

UNDERGRADUATES.

SENIOR CLASS.

Richard Henry Appleby,	New York City,	16 N E
Chester Allan Arthur, Jr.,	New York City,	14 & 15 U H
John Watson Barr, Jr.,	Louisville, Ky.,	5 E M W H
James Wilson Bayard,	Germantown, Pa.,	20 N W
Robert H. Beattie,	Salisbury Mills, N. Y.,	10 N E
Joseph Dorsett Bedle, Jr.,	Jersey City, N. J.,	10 W W H
William Duffield Bell,	New York City,	8 N M R H
Clinton Wallace Bird,	New York City,	18 N E
Edward King Blades,	Bloomington, Ill.,	11 S M R H
Samuel McCrea Brann,	Charlton, N. Y.,	20 S W
John Woods Brown, Jr.,	Milton, Pa.,	19 S E
Henry Caldwell Bryan,	Washington, D. C.,	79 U H
Frederick Wing Burleigh,	Fitchburg, Mass.,	12 N E
†Putnam Cady,	Princeton, N. J.,	Mrs. Cady's
Robert Eber Carter,	Huntington, L. I.,	31 N E H
Warren Blanchard Chapin,	New York City,	8 N M R H
Charles Steele Clark,	Indiana, Pa.,	17 W W H
James Harlan Cleveland,	Augusta, Ky.,	5 W M W H
John Haughton Coney,	Cincinnati, O.,	18 S E
Wm. Waddell Conner,	Washington, Iowa,	11 S M R H
John Crossan Cooper,	Pittsburg, Pa.,	11 E W H
Eugene Calvin Coulter,	Brookfield, O.,	27 N
Monroe Crawford,	Hoboken, N. J.,	17 S E
Aaron Van Syckle Dawes,	Hightstown, N. J.,	25 S E H
Sherrerd Depue,	Newark, N. J.,	Mr. Geo. Goldie's
John Rogers Dickey,	Philadelphia, Pa.,	2 W W H
William Andrews Dickey,	Manchester, N. H.,	79 U H
Malvern Nicholas Due,	Wetumpka, Ala.,	Mr. Zapf's
Frank Strong Dunshee,	Thomson, Ill.,	40 S E H
George Britton Durell,	Pennington, N. J.,	18 S W

†Signifies under conditions, or not fully examined.

Duncan Edwards,	Brooklyn, N. Y.,	31 S E H
George Edgar Etter,	Harrisburg, Pa.,	8 U H
Fredk. Butterfield Faitoute,	Newark, N. J.,	12 U H
J. Clinton Foltz,	Lancaster, Pa.,	4 S M R H
Abram Bradley Gaither,	Baltimore, Md.,	7 S E
Carey Breckenridge Gamble,	Baltimore, Md.,	13 E W H
Hiram Abiff Gooch,	Louisville, Ky.,	6 S E
Frank Griffith,	Jacksonville, Ill.,	12 E W H
Wm. Maclay Hall, Jr.,	Bedford, Pa.,	M, U H
†Alexander Hardcastle,	Goldsboro', Md.,	
J. Borden Harriman,	New York City,	10 S E
John Morgan Harris,	Taylorville, Pa.,	10 N M R H
James Edward Hayes,	Princeton, N. J.,	Mrs. Hayes'
Walter Bryant Head,	Pittsburg, Pa.,	46 U H
James Robert Hughes,	Bellefonte, Pa.,	17 S E
Wm. Fessenden Jackson,	Newark, N. J.,	11 N W
John Edgar Johnson, Jr.,	New York City,	13 S E
Henry Kirkland Jones,	Fortress Monroe, Va.,	7 S M R H
Eaton McLean Kempshall,	Elizabeth, N. J.,	16 W W H
Sanford Norris Knapp,	Peekskill, N. Y.,	18 N W
Charles Rhodes Knox,	Bloomfield, N. J.,	9 S R H
Henry Lamberton,	Winona, Minn.,	16 W W H
Reuben S. Lawrence,	Wichita, Kan.,	19 S M R H
S. Harper Leeper, Jr.,	Frankfort Springs, Pa.,	19 N E
John C. Lord,	Morristown, N. J.,	H, U H
William Henry Lynch,	Fair Hill, Md.,	22 N E H
David Hunter McAlpin, Jr.,	New York City,	12 W W H
Charles Flint McClumpha,	Amsterdam, N. Y.,	13 N W
John Bird McFerran, Jr.,	Louisville, Ky.,	5 E M W H
Clarence Walworth McIlvaine,	St. Albans, Vt.,	6 E W H
Wm. Brown McIlvaine,	Peoria, Ill.,	4 W W H
James Henry Miller,	Springfield, O.,	30 S E H
James Percy Murray,	Princeton, N. J.,	Dr. Murray's
Howard G. Myers,	Albany, N. Y.,	13 N W
Max Brunswick Nahm,	Bowling Green, Ky.,	1 S M R H
Robert Meade Parker,	Newark, N. J.,	8 S R H
Jno. M. Penick,	Louisville, Ky.,	27 S E H
Theodore Pershing,	Pottsville, Pa.,	16 S E

William Pickersgill Riggs,	Baltimore, Md.,	7 W M W H
†William Henry Robinson,	West Hebron, N. Y.,	16 N
Ford Winfield Rochelle,	Sparta, N. J.,	2 N E H
Paul Adrian Scharff,	Newark, N. J.,	2 S E H
Joseph Bernard Shea,	Pittsburg, Pa.,	9 N W
Alfred Bowne Sherwood,	Scotchtown, N.Y.,	Miss Lockard's
Augustine Coleman Smith,	New York City,	14 W W H
Benjamin Bosworth Smith,	Louisville, Ky.,	Mr. Hudnut's
Everett Lansing Smith,	New York City,	5 W M W H
Robert Little Smith,	Appleton, Wis.,	17 N W
Charles Reid Spence,	Baltimore, Md.,	11 S W
A. Livingston Stavely,	Lahaska, Pa.,	10 N R H
William DeWitt Sterry,	New York City,	20 S E
Jonathan Sturges,	New York City,	8 E W H
George E. Swartz,	Milton, Pa.,	10 S E H
Henry Dallas Thompson,	Berkeley, Cal.,	12 S M R H
Lewis Howell Towler,	Corunna, Mich.,	10 S R H
Arthur Magie Tree,	Chicago, Ill.,	8 E M W H
Geo. Urquhart, Jr.,	Wilkes Barre, Pa.,	10 N R H
Charles Van Ausdal,	Dayton, O.,	12 N W
Paul Weir,	Owensboro, Ky.,	9 N M R H
James McIver Wicker,	Sanford, N. C.,	41 S E H
William Lane Wilbur,	Hightstown, N. J.,	23 N E H
Robert Parmelee Wilder,	Princeton, N. J.,	Mr. Wilder's
Edmund Wilson,	Shrewsbury, N. J.,	9 S R H
Frederic Hart Wilson,	Philadelphia, Pa.,	13 N M R H
Edward Scott Wood,	Trenton, N. J.,	5 N R H
William Edwin Woodend,	Huntington, L. I.,	17 N E H
Frank Stiles Woodruff,	Elizabeth, N. J.,	10 N E
Charles Robert Wylie, Jr.,	Pottstown, Pa.,	17 S W

SENIORS, ... 98.

JUNIOR CLASS.

James Collins Adams,	Oakland, Cal.,	9 E M W H
Pearce Bailey,	Morristown, N. J.,	11 W W H
Joseph Deyoe Baucus,	Bacon Hill, N. Y.,	8 N R H

Dan Denison Bickham,	Dayton, O.,	16 N W
Montgomery Blair, Jr.,	Washington, D. C.,	10 W M W H
Robert Bruce Bowie,	Baltimore, Md.,	18 & 19 S E H
†James Harrington Boyd,	Wooster, O.,	Mr. Warren's
Herbert Lamotte Brice,	Lima, O.,	3 W W H
John Calhoun,	Van Wert, O.,	17 & 20 S E H
Wm. Adley Calhoun,	Van Wert, O.,	17 & 20 S E H
Arnold Guyot Cameron,	Princeton, N. J.,	Prof. Cameron's
James Cochran Carter,	Boonton, N. J.,	21 N E H
Samuel Thompson Carter, Jr.,	Huntington, L. I.,	30 N E H
John W. Cary, Jr.,	Milwaukee, Wis.,	Mrs. Stonaker's
†John Reiff Cassel,	Cedars, Pa.,	Mr. Waibel's
David Edgar Crozier,	Taylor's Falls, Minn.,	40 N E H
James Woodward Clark,	Indiana, Pa.,	17 W W H
Horace Newton Congar, Jr.,	Newark, N. J.,	3 N R H
Charles M. De Camp,	Pittsburg, Pa.,	6 W M W H
William S. Dodd,	Newark, N. J.,	Mrs. Lavake's
Anthony Woodward Durell,	Pennington, N. J.,	18 S.W
George A. Tryon Eddy,	Brockport, N. Y.,	20 N E
Wm. Simpson Elder,	Warsaw, O.,	14 N E H
Harry Charles Elsing,	South Evanston, Ill.,	39 S E H
Charles Rosenbury Erdman,	Jamestown, N. Y.,	1 E M W H
Fred Evans, Jr.,	Franklin, Pa,,	6 S R H
Frank Bateman Everitt,	Jamesburg, N. J.,	13 S M R H
Wilson Farrand,	Newark, N. J.,	36 S E H
Matthew Corry Fleming,	Xenia, O.,	1 E M W H
Harry H. Forsyth,	Princeton, N. J.,	Mr. Forsyth's
Joseph Holt Gaines,	Fayetteville, W.Va.,	10 W M W H
James Sproat Green, Jr.,	Elizabeth, N. J.,	B, U H
Robert Stockton Green, Jr.,	Elizabeth, N. J.,	8 S R H
Wm. Alexander Guthrie,	Indiana, Pa.,	7 N W
Wm. D. Waples Hall,	Lewes, Del.,	1 S R H
R. T. Haines Halsey,	New Orleans, La.,	4 N R H
Marshal Halstead,	Cincinnati, O.,	8 S W
John W. Harding,	Tunkhannock, Pa.,	5 S E H
J. Arden Harriman,	New York City,	4 W M W H
Tracy Hyde Harris,	Hightstown, N. J.,	14 S W
Charles Elliott Hays,	Crawfordsville, Ind.,	12 N

Charles Helliwell,	Princeton, N. J.,	42 S E H
Walter Lowrie Hervey,	Granville, O.,	Mrs. Stonaker's
Harry Hillard,	Morristown, N. J.,	8 N R H
Hugh Lenox Hodge,	Hartford, Conn.,	7 N R H
Richard Morse Hodge,	Hartford, Conn.,	7 N R H
Wm. Herbert Hudnut,	Orange, N. J.,	Mr. Hudnut's
Ottis Leander Jacobs,	York, Pa.,	Mrs. Burroughs'
Charles Albert Jaggar,	Southampton, L. I.,	18 N E H
Harry W. Jessup,	Montrose, Pa.,	9 N R H
William Jessup,	Montrose, Pa.,	9 N R H
Robert Crawford Johnston,	Hollidaysburg, Pa.,	6 N R H
Francis Fisher Kane,	Philadelphia, Pa.,	G. U H
Wm. Dickey Kearns,	Pittsburg, Pa.,	4 N M R H
Alford Kelley,	Baltimore, Md.,	25 N E H
Henry Cumming Lamar,	Augusta, Ga.,	3 E W H
Augustus Strong Mapes,	New York City,	24 N E H
John Cass Mathis,	Springfield, Ill.,	12 S E
John S. McAdam,	Newport, R. I.,	Mrs. Harvey's
George Brinton McClellan, Jr.,	Orange, N. J.,	4 W M W H
Sam'l John McClenaghan,	Kings Bridge, Pa.,	Mrs. Burroughs'
John Wm. McKechnie,	Cincinnati, O.,	12 S E
Carroll McKenny,	Washington, D. C.,	20 W W H
Wm. Stevenson McLaren,	Philadelphia, Pa.,	32 Old Sem.
John McMullin,	San Francisco, Cal.,	9 E M W H
Harris Cornell Meserole,	Brooklyn, N. Y.,	14 S E
Edward Demoss Miller,	Gerrardstown, W. Va.,	16 S M R H
Marion Mills Miller,	Eaton, O.,	Mr. B. Warren's
David Meriwether Milton,	Louisville, Ky.,	7 E W H
Joseph Carroll Montanye,	Hatboro, Pa.,	1 S R H
John Alexander Montgomery,	Trenton, N. J.,	3 N R H
Matthew Morgan,	New York City,	17 E W H
Jno. Stevens Parker,	Princeton, N. J.,	Mr. Parker's
Stewart Paton,	New York City,	Mr. Goldie's
William Rankin,	Newark, N. J.,	20 N E
Joseph Pope Ranney,	Elizabeth, N. J.,	12 N E H
Taylor Reed,	Reedsville, Pa.,	17 N E
Arthur Wm. Remington,	Great Barrington, Mass.,	18 N E
George Reynolds,	Orange, N. J.,	4 N R H

Edward Orth Robinson,	Allegheny, Pa.,	15 S E
George Black Roddy,	New Bloomfield, Pa.,	18 N
Richard Reid Rogers,	Mt. Sterling, Ky.,	19 W W H
George Lester Rundle,	Walpack Centre, N. J.,	1 N M R H
James Prestly Shaw,	Pittsburg, Pa.,	8 S W
Ralph Crowley Sheldon,	Jamestown, N. Y.,	43 U H
Jno. Archer Silver,	Dear Creek, Md.,	15 S E H
Harry Brooks Smith,	Charleston, W. Va.,	Mrs. Warren's
Alexander Stewart, Jr.,	Chambersburg, Pa.,	6 N E
Charles Grimes Stoddard,	Dayton, O.,	2 E W H
Oliver Smith Strong,	Montclair, N. J.,	Miss Smith's
Wm. Ferree Timlow,	Amity, N. Y.,	6 N E
Llewellyn Thomas,	New York City,	9 E W H
Robert Duncan Totten,	Pittsburg, Pa.,	8 W M W H
Charles Sloan Van Syckel,	Trenton, N. J.,	9 W W H
James A. Van Wagenen,	New York City,	Mr. Goldie's
John Milligen Waddell,	Princeton, Ill.,	Mrs. Priest's
†Albert Chandler Wall,	Hoboken, N. J.,	35 S E H
Lewis Rodman Wanamaker,	Philadelphia, Pa.,	12 E W H
Gaylord Starin White,	New York City,	Mrs. Newton's
Wm. Phelps Wood,	Trenton, N. J.,	5 N R H

JUNIORS, ... 100.

SOPHOMORE CLASS.

John Erskine Adams,	Augusta, Ga.,	6 S E
Wilson Shaw Arbuthnot,	Pittsburg, Pa.,	8 W M W H
George Titus Berry,	Caldwell, N. J.,	18 N E
Robert Wm. Blake,	Princeton, N. J.,	Mr. Blake's
Robert R. P. Bradford,	Dover, Del.,	4 E M W H
Stewart Brown,	New York City,	10 E W H
Charles Shepard Bryan,	New Berne, N. C.,	4 E M W H
John Henry Denny,	Baltimore, Md.,	49 U H
James Parker Dodd,	Newark, N. J.,	6 E M W H
Samuel Thompson Dodd,	Garfield, N. Y.,	20 N
Wm. John Duane,	New York City,	2 W M W H
Herbert Elder.	Harrisburg, Pa.,	35 N E H

John Wilson Elder,	Clarion, Pa.,	7 N W
Eugene Maurice Fitzgerald,	Washington, D. C.,	5 S E
William Holmes Forsyth,	Princeton, N. J.,	Mr. Forsyth's
†Robert Gilchrist, Jr.,	Jersey City, N. J.,	20 E W H
Harry Lomison Goehring,	Irwin, Pa.,	18 U H
Edward Field Goltra,	Jacksonville, Ill.,	2 W M W H
Adolph Gustave Greenberg,	Newark, N. J.,	5 S E
Clarence Halstead,	Cincinnati, O.,	7 S W
Henry Cator Heverin,	Philadelphia, Pa.,	4 S R H
Robert James Hunt,	Trenton, N. J.,	Trenton
Solomon Stanger Iszard,	Glassboro, N. J.,	9 N E
John Martin Jamison,	Greensburg, Pa.,	11 N E H
Roger Bruce Cash Johnson,	Nassau, W. I.,	16 N E
Wm. Hallock Johnson,	New York City,	18 S E
Chas. Pitt Fidd Joyce,	Washington, D. C.,	15 W W H
George Armstrong Kelly, Jr.,	Pittsburg, Pa.,	5 N M R H
Adrian Hoffman Larkin,	Sing Sing, N. Y.,	19 E W H
Mark Harvey Liddell,	Clearfield, Pa.,	8 S M R H
James Henry Lockhart,	Pittsburg, Pa.,	5 S W
Charles Hill Macloskie,	Princeton, N. J.,	Prof. Macloskie's
Robert William Mason,	East Norwood, O.,	17 N
Frank Keller McCance,	Allegheny City, Pa.,	3 E M W H
Peter McHarg McQueen,	Cretown, Scotland,	10 N E H
Albert Lincoln Mershon,	Princeton, N. J.,	Mrs. Mershon's
John Izard Middleton, Jr.,	Baltimore, Md.,	18 W W H
Wm. Watts Montgomery, Jr.,	Augusta, Ga.,	8 W W H
William Montgomery Nichol,	Indiana, Pa.,	15 N E H
Lyman Halter Nutting,	Lebanon, Pa.,	5 N E
Gordon Paddock,	New York City,	7 W W H
James Paige,	Minneapolis, Minn.,	32 N E H
Albert George Parker,	Oswego, N. Y.,	26 N
Hamilton Parrish,	Philadelphia, Pa.,	15 N W
Horace Marshall Porter,	New York City,	7 N E
John Wahl Queen, Jr.,	Mount Pleasant, N. J.,	9 N E
Frank Ellison Reid,	Urbana, O.,	8 N E H
George Livingston Robinson,	West Hebron, N. Y.,	16 N
Clarence William Rouse,	W. New Brighton, N. Y.,	24 N
Henry Seymour Savage,	Virginia, Ill.,	3 E M W H

Alfred Hedges Scofield,	Budd's Lake, N. J.,	25 N
Edward Walker Scott,	Richmond, Va.,	8 W W H
George Beale Sloan, Jr.,	Oswego, N. Y.,	20 E W H
Frank Hyatt Smith,	Detroit, Mich.,	10 S R H
William Marvin Spalding,	Denver, Colo.,	4 S E H
Franklin Spencer Spalding,	Denver, Colo.,	4 S E H
Arthur Robins Speer,	Pittsburg, Pa.,	2 E M W H
Louis Stearns,	New York City,	8 W M W H
Isaac Lanning Van Schoick,	Perrineville, N. J.,	14 S M R H
Lucien Waggener, Jr.,	Frankfort, Ky.,	Miss Smith's
Charles Hurlbut Whitaker,	Delta, Pa.,	Mrs. Burroughs'
Francis Harding White,	Washington, D. C.,	17 S M R H
Joseph White Williams,	Paterson, N. J.,	24 S E H
Hallam Gregory Williamson,	Washington, D. C.,	15 W W H

SOPHOMORES, ... 64.

FRESHMAN CLASS.

Robert Staunton Adams,	New York City,	9 W M W H
†David Gilbert Adler,	Philadelphia, Pa.,	77 U H
Horace Anderson,	Indianapolis, Ind.,	12 N
John Willard Atkinson,	Jersey City, N. J.,	39 N E H
Geo. Reade Baldwin,	Elmira, N. Y.,	38 U H
‡John W. Ballantine,	Hamden, N. Y.,	71 U H
Frederick Griswold Beebe,	Port Byron, N. Y.,	37 S E H
James Seguin de Benneville,	Philadelphia, Pa.,	11 U H
Charles Newbold Black, Jr.,	New York City,	11 S E
Collins Pechin Bliss,	Philada., Pa.,	Mrs. Newton's
Edgar Sumner Bliss,	Philada., Pa.,	34 N E H
Alexander Britton,	Washington, D. C.,	2 U H
David Dandie Brough,	Providence, R. I.,	37 N E H
Henry Irick Budd, Jr.,	Mt. Holly, N. J.,	9 S E H
Henry Ernest Trow Carter,	Orange Valley, N. J.,	9 W M W H
Russell Carter,	Montclair, N. J.,	13 S W
Charles Cumston Chadbourn,	Wilmington, N. C.,	

†Under conditions.
‡On trial.

James Robb Church,	Washington, D. C.,	73 U H
‡Hector William Cowan,	Hobart, N. Y.,	71 U H
John Walter Cox,	Tuckerton, N. J.,	Rev. J. Parker's
Calvin Bradley Crafts,	Tallahassee, Fla.,	Mrs. Smith's
Winthrop More Daniels,	Dayton, O.,	Mrs. Lavake's
Hugh Trowbridge Dobbins,	Calistoga, Cal.,	Mr. Burroughs'
William Ross Downing,	Peoria, Ill.,	33 S E H
Frederick Lindsley Drummond,	Newark, N. J.,	Mrs. Ferguson's
Livingston Farrand,	Newark, N. J.,	26 S E H
John Fraser, Jr.,	Philadelphia, Pa.,	7 N E H
Kemper Fullerton,	Georgetown, D. C.,	34 S E H
James Diverty Godfrey,	Millville, N. J.,	10 U H
Robert Halstead,	Cincinnati, O.,	7 S W
Thomas Benton Hamilton,	Columbus, O.,	F, U H
James Hancock,	Philadelphia, Pa.,	11 N E
Osmund Howard Harvey,	Baltimore, Md.,	44 U H
William Lawson Harvey,	Cincinnati, O.,	60 U H
Charles James Hatfield,	Pottstown, Pa.,	17 S W
Benjamin V. D. Hedges,	Chester, N. J.,	33 N E H
†Elias Hicks Herrick,	New York City,	7 E M W H
Samuel Colgate Hodge,	Hartford, Conn.,	7 N R H
William Ledyard Hodge,	Washington, D. C.,	73 U H
Edwin Mortimer Hopkins,	Carmel, N. Y.,	41 N E H
Charles F. Howell,	Cranbury, N. J.,	21 S E H
William Mann Irvine,	Bedford, Pa.,	10 N M R H
Charles Leonard Jones,	Allegheny City, Pa.,	20 U H
Samuel King,	Washington, D. C.,	2 S M R H
Robert Hutchinson Kirk,	Lancaster, Pa.,	7 N E H
Frederick Joy Knox,	Bloomfield, N. J.,	Mrs. Ferguson's
Alexander Durbin Lauer,	Philadelphia, Pa.,	50 U H
Charles Williston McAlpin,	New York City,	11 N E
Thomas Nesbitt McCarter, Jr.,	Newark, N. J.,	6 N M R H
Chas. F. Williams McClure,	Boston, Mass.,	10 E M W H
‡Alex. Hugh McCormick, Jr.,	Washington, D. C.,	3 N M R H
Robert Winters McGregor,	Dayton, O.,	Mrs. Lavake's
Porter Robert McMaster,	Greenwich, N. Y.,	15 S M R H
George Whitfield MacMillan,	Perrineville, N. J.,	42 N E H
John McMillan,	Pittston, Pa.,	26 N E H

Howard McWilliams,	Brooklyn, N. Y.,	A, U H
Thomas Hanna Mackenzie,	Salem, N. Y.,	5 U H
Richard Waln Meirs,	Hornerstown, N. J.,	60 U H
Ulysses Mercur, Jr.,	Towanda, Pa.,	K, U H
Andrew Harold Miller,	Philada., Pa.,	Mrs. Warren's
Junius Spencer Morgan, Jr.,	New York City,	34 U H
†Archibald Robertson Osmer,	Franklin, Pa.,	12 N M R H
Morris Longstreth Parrish,	Philadelphia, Pa.,	16 N E H
Thomas Marc Parrott,	Dayton, O.,	33 U H
James Hammond Pershing,	Stauffer, Pa.,	29 N E H
Daniel Walter Phelan,	Gillette, N. J.,	32 S E H
Luther Cozens Price,	Cape May City, N. J.,	16 S W
William L. Price,	Cape May City, N. J.,	16 S W
Ralph Earl Prime, Jr.,	Yonkers, N. Y.,	15 N M R H
Evans Tulane Richardson,	Stanton, Tenn.,	28 N E H
Elliott Verne Richardson,	Trenton, N. J.,	9 N E H
Jacob Riegel,	Philadelphia, Pa.,	N, U H
Theodore Kepner Rinehart,	Millerstown, Pa.,	19 N
Peter Rioseco,	Philadelphia, Pa.,	7 S E H
William Courtland Robinson,	Delhi, N. Y.,	15 S M R H
William Henry Runyon,	Millington, N. J.,	4 N E H
Charles Alvin Schmidt,	Philadelphia, Pa.,	7 S E H
George E. Scott,	Newark, N. Y.,	2 N R H
‡William L. Sidler,	Danville, Pa.,	29 S E H
Charles Sidney Smith,	Washington, D. C.,	Mr. Hudnut's
J. W. Stedman,	Wilmington, N. C.,	9 U H
John De Witt Sterry,	New York City,	20 S E
‡J. Frank Stoner,	Mifflintown, Pa.,	
William Emery Studdiford,	Trenton, N. J.,	5 S R H
Arthur Pemberton Sturges,	New York City,	14 E W H
James Frederick Talcott,	New York City,	7 E M W H
Walter Cerré Taylor,	St. Louis. Mo.,	11 N E H
John Benton Thomas,	Princeton, N. J.,	Mr. Thomas'
Stephen G. Thomas,	Princeton, N. J.,	Mr. Thomas'
Chas. Williamson Van Dyke,	Cranbury, N. J.,	19 N W
George B. Westcott VanDyke,	Cranbury, N. J.,	19 N W
‡C. Doremus VanWagenen, Jr.,	New York City,	Mr. Geo. Goldie's
Atherton Blight Wadleigh,	Bryn Mawr, Pa.,	28 S E H

Ellwood O. Wagenhorst,	Clifton, Pa.,	29 S E H
Frank Allan Waterman,	Fulton, N. Y.,	13 S W
William Wisner White,	Summit, N. J.,	27 N E H
Tennis Williamson,	Flatbush, L. I.,	3 U H
Walter Augustus Wyckoff,	Sullunder City, India,	24 N
Edward Yeomans,	Orange, N. J.,	19 N E H

FRESHMEN, ... 99.

SPECIAL STUDENTS.

NOT CANDIDATES FOR A DEGREE.

Fred Freeman Blossom,[1]	Peoria, Ill.,	2 S R H
Charles Avery Clark,[1]	Steubenville, O.,	37 Old Sem.
Frank Gates Ellett,[1]	Layton, N. J.,	5 N E H
Wm. Judd Goudy,[2]	Chicago, Ill.,	16 E W H
Jeptha Lee Holton,[2]	Steubenville, O.,	1 W W H
H. Joseph Woodward,[1]	Peoria, Ill.,	2 S R H
John H. Nixon,[2]	Wilmington, Del.,	D, U H

1. First Year of Course. 2. Second Year.

SPECIALS, ... 7.

SUMMARY.

SENIORS,	98
JUNIORS,	100
SOPHOMORES,	64
FRESHMEN,	99
SPECIALS,	7
TOTAL,	368

THE

JOHN C. GREEN SCHOOL OF SCIENCE.

JAMES McCOSH, PRESIDENT, *Psychology.*
JAMES O. MURRAY, DEAN, *English Literature and Language.*
J. STILLWELL SCHANCK, *General Chemistry.*
CYRUS F. BRACKETT, *Physics.*
HENRY B. CORNWALL,. *Analytical Chemistry and Mineralogy.*
GEORGE MACLOSKIE, *Botany, Zoölogy, Biblical Instruction.*
CHARLES McMILLAN, *Civil Engineering.*
CHARLES A. YOUNG, *Astronomy.*
CHARLES G. ROCKWOOD, JR., *Mathematics.*
THEODORE W. HUNT, *Rhetoric, English Language.*
GEORGE L. RAYMOND, *Oratory and Æsthetic Criticism.*
WILLIAM LIBBEY, JR., *Hypsometry, Meteorology, Histology.*
WILLIAM B. SCOTT, *Geology.*
HENRY F. OSBORN, *Comparative Anatomy.*
FREDERICK N. WILLSON, *Descriptive Geometry, Stereotomy, Drawing.*
ALEXANDER T. ORMOND, *Logic.*
ALEXANDER JOHNSTON, *Political Economy.*
HERMANN C. O. HUSS, *French, German.*
MALCOLM McNEILL, *Practical Astronomy.*
H. S. S. SMITH, *Civil Engineering.*
LEROY W. McCAY, *Analytical Chemistry.*
ARCHIBALD L. DANIELS, *Mathematics.*

UNDERGRADUATES.

SENIOR CLASS.

I. Candidates for B.S. II. For C.E.

I. Edmund Wallen Bill,	New York City,	16 S E
II. James Buckelew,	Jamesburg, N. J.,	3 S R H
II. Clarence L. Burger,	Brooklyn, N. Y.,	8 N E
II. John Stevens Conover,	Princeton, N. J.,	Mr. Conover's
II. Janon Fisher,	Baltimore, Md.,	9 S W
II. Luther Weeks Frost,	Yonkers, N. Y.,	13 N E H
I. Persifor Frazer Gibson,	Philadelphia, Pa.,	8 E M W H
II. Wm. Joseph Greene,	Cedar Rapids, Ia.,	15 S W
II. John Blanchard Miles,	Peoria, Ill.,	4 W W H
I. Frank Heath Speer,	Pittsburg, Pa.,	2 E M W H

SENIORS. 10

JUNIOR CLASS.

I. William Ballantyne,	Washington, D. C.,	E, U H
II. Daniel Bower Banks,	Baltimore, Md.,	18 & 19 S E H
II.† William R. Blakemore,	Louisville, Ky.,	10 N W
I. Joseph Cashman,	Watertown, Mass.,	20 N E H
II. Herbert Hugh Claxton,	Yonkers, N. Y.,	10 N
I. Bertric Egbert,	Franklin, Pa.,	6 S R H
II. Charles E. Griffith,	Lawrence, Kan.,	6 S W
II. Charles T. Day Halsey,	Newark, N. J.,	
II. David Elwood Harlan,	Churchville, Md.,	12 S W
II. Walter Butler Harris,	Princeton, N. J.,	Mr. Harris'
I. John J. Lawrence, Jr.,	Pittsburg, Pa.,	C, U H
I. Edward H. Pershing,	Pottsville, Pa.,	18 S E
I. George Edward Shea,	Pittsburg, Pa.,	9 N W
II. Henry P. Toler,	Madison, N. J.,	13 N E
II. Henry Edgerton Vance,	Wheeling, W. Va.,	10 S W
I. W. Summerill Vanneman,	Salem, N. J.,	1 N R H
I. Charles Whiting,	Ballston, N. Y.,	14 S E H
II. Samuel Renwick Wills,	Wilkinsburg, Pa.,	1 N R H

†Under conditions or not fully examined.

II.	James Wilson Woodrow,	Chillicothe, O.,	9 S E
II.	Fred. A. Young,	Princeton, N. J.,	Prof. Young's

JUNIORS, ... 20

SOPHOMORE CLASS.

II.	Frederick K. Alexander,	Monongahela City, Pa.,	5 S M R H
II.	Thomas Francis Bedle,	Jersey City, N. J.,	23 S E H
I.	Samuel Mills Bevin,	Easthampton, Conn.,	14 S W
II.	Francis Ogden Blackwell,	New York City,	3 W M W H
I.†	Charles Earle,	New York City,	Mrs. Harvey's
I.	Frank Enos,	Brooklyn, N. Y.,	6 E M W H
I.	Jesse G. Falls,	Memphis, Tenn.,	Mrs. Smith's
I.	David Greene,	Columbus, O.,	1 E W H
II.	Francis Henry,	Princeton, N. J.,	Mr. Henry's
II.	Fredk. Wolcott Jackson, Jr.,	Newark, N. J.,	14 N W
I.	George Pierson Jessup,	Oneida, N. Y.,	19 S W
I.	William Larimer Jones,	Pittsburg, Pa.,	9 S M R H
I.	Samuel Roseburg Kelly,	Pittsburg, Pa.,	5 N M R H
II.	Henry A. S. Livingood,	Reading, Pa.,	18 E W H
I.	James Gabriel Ludlum,	Pompton, N. J.,	Mr. Carpenter's
I.	A. H. Phillips,	Lawrenceville, N. J.,	12 S E H
I.	James Walter Phillips,	Princeton, N. J.,	Mrs. Furman's
II.	Clinton Levering Riggs,	Baltimore, Md.,	7 W M W H
II.	Thomas Oliphant Speir,	South Orange, N. J.,	6 N W
II.	David Frederick Walker,	Salt Lake City, Utah,	5 N W

SOPHOMORES, ... 20

FRESHMAN CLASS.

I.	Stephen Weart Blackwell,	Trenton, N. J.,	5 S R H
II.†	Wm. James Jarard Bowman,	Trenton, N. J.,	Trenton
I.	Frederick Joseph Church,	Hudson, N. Y.,	13 S E H
I.	William Hunter Churchill,	Sing Sing, N. Y.,	75 & 76 U H
I.	Andrew Harris Clerk,	Jersey City, N. J.,	Mrs. Lavake's
I.	B. Dawson Coleman,	Lebanon, Pa.,	13 E W H
I.	Herbert Drummer Cory,	Englewood, N. J.,	Mrs. Anderson's
II.	Robert Hazlett Cummins,	Wheeling, W. Va.,	2 N W
I.	Homer E. Fraser,	Fowlersville, N. Y.,	2 N R H

I. Francis M. Frazer,	Newark, N. J.,	1 W M W H
II.‡ John Calvin Graham, Jr.,	Selma, Ala.,	L, U H
I. William Wright Harts,	Springfield, Ill.,	15 N E
II. Conrad Hewitt,	Trenton, N. J.,	P, U H
I. Thomas E. Inslee,	Newton, N. J.,	14 N M R H
I.† Frank Jones King,	Pittsburg, Pa.,	32 U H
II. Harry D. Klots,	New York City,	I, U H
II. Paul Cazenove Lamar,	Augusta, Ga.,	13 U H
II. Edward Heber McCleery,	Milton, Pa.,	6 W W H
II. John Elliot Nicholson,	New York City,	16 U H
I.‡ Reginald Kearney Shober,	Philada., Pa.	
I.† Garret Voorhees Stryker,	Rocky Hill, N. J.,	8 S E H
I. Ferris Sherman Thompson,	New York City,	15 E W H
II.† Robert Elliot Tod,	Scotland,	5 E W H
I.‡ March Gonzales Turner,	Wilkesbarre, Pa.,	17 U H
I. Thornton Floyd Turner,	Englewood, N. J.,	Mrs. Anderson's
I.‡ Charles Houston Wilson,	Englewood, N. J.,	68 & 69 U H

FRESHMEN,. 26

†Under Conditions.
‡On trial.

SPECIAL STUDENTS.

NOT CANDIDATES FOR A DEGREE.

Alfred Thornton Baker,[4]	Camden, N. J.,	Mr. Conover's
John Henry Brickenstein,[2]	Lititz, Pa.,	18 S M R H
Daniel Webster Evans, Jr.,[1]	Englewood, N. J.,	O, U H
Arthur Daniel Forst,[1]	Trenton, N. J.,	Trenton
Herman Frederic Lee,[2]	Stevensville, Pa.,	7 S R H

1. First year of course. 2. Second year. 4. Fourth year.

SUMMARY.

SENIORS,	10
JUNIORS,	20
SOPHOMORES,	20
FRESHMEN,	26
SPECIALS,	5
TOTAL,	81

GENERAL SUMMARY.

FELLOWS	7
GRADUATE STUDENTS	66
ACADEMIC STUDENTS	368
SCIENTIFIC STUDENTS	81
	522
NAMES REPEATED	3
	519

CLASSIFICATION BY RESIDENCE OF UNDER-GRADUATES.

NEW JERSEY	115	INDIANA	2
PENNSYLVANIA	99	IOWA	2
NEW YORK	86	KANSAS	2
OHIO	29	MICHIGAN	2
ILLINOIS	16	RHODE ISLAND	2
MARYLAND	16	TENNESSEE	2
DISTRICT OF COLUMBIA	15	VIRGINIA	2
KENTUCKY	12	WISCONSIN	2
WEST VIRGINIA	5	FLORIDA	1
CALIFORNIA	4	LOUISIANA	1
CONNECTICUT	4	MISSOURI	1
GEORGIA	4	NEW HAMPSHIRE	1
MASSACHUSETTS	4	UTAH	1
NORTH CAROLINA	4	VERMONT	1
DELAWARE	3	SCOTLAND	2
MINNESOTA	3	INDIA	1
ALABAMA	2	WEST INDIES	1
COLORADO	2		

ABBREVIATIONS.

N, Nassau Hall.
N E, North Entry of East College.
S E, South Entry of East College.
N W, North Entry of West College.
S W, South Entry of West College.
N R H, North Entry of Reunion Hall.
S R H, South Entry of Reunion Hall.
N M R H, North Middle Entry of Reunion Hall.
S M R H, South Middle Entry of Reunion Hall.
E W H, East Entry of Witherspoon Hall.
W W H, West Entry of Witherspoon Hall.
E M W H, East Middle Entry of Witherspoon Hall.
W M W H, West Middle Entry of Witherspoon Hall.
N E H, North Entry of Edwards Hall.
S E H, South Entry of Edwards Hall.
U H, University Hall.

HONORS AND DEGREES CONFERRED.

DEGREES.

Honorary Degrees conferred June, 1884.

LL.D.—His Excellency Chester A. Arthur, President of the United States.
Hon. Leon Abbett, Governor of the State of New Jersey.
Hon. John M. Harlan, Justice of the Supreme Court.

D.D. —Rev. Joseph S. VanDyke, Class of 1857, New Jersey.
Rev. William Imbrie, Prof. Union Theo. Sem., Tokio, Japan.
Rev. Henry J. VanDyke, Jr., Class of 1873, New York.
Rev. George C. Seibert, Prof. German Theo. Sem., New Jersey.

A.M. —E. W. Given, Newark Academy, New Jersey.
Henry D. Chapin, B.S., Class of 1877, New York.

Degrees in Course.

Master of Arts	49
Bachelor of Arts	97
Master of Science	1
Bachelor of Science	4
Civil Engineer	7

HONORS 1883-4.

COMMENCEMENT HONORS.

MASTER'S ORATION.

David A. Haynes, New York.

ORATIONS AT GRADUATION.

The Latin Salutatory.

Alfred G. Reeves, New Jersey.

The Valedictory.

James Marcus Baldwin, South Carolina.

The English Salutatory.

Robert Kelly Prentice, New York.

The Philosophical and Classical Oration.

Henry Bell Gayley, Maryland.

Honorary Orations and Theses.

With Special Excellence in Particular Departments Indicated.

Angier Bailey Hobbs, District Columbia. *Ethics.*
Alex. Horton Travis, New York. *Astronomy.*
George Prentice Butler, New York. *Philosophy.*
Thomas M. Nichols, Pennsylvania. *General Excellence.*
Henry N. Paul, Pennsylvania. *General Excellence.*
Albert M. Jackson, Pennsylvania.
Charles T. McMullin, Ohio.
William M. Langdon, New York.
Alvin P. Lewis, Kentucky. *Philosophy.*
Thomas J. McCormick, New York.
William Chester, District of Columbia.
Charles S. Hamilton, Ohio. *Greek.*
John Howard Neely, Pennsylvania.
Alvin Blackwell, New Jersey.
Ambrose Giddings Todd, New Jersey.
Robert F. McMahon, Ohio. *Political Philosophy.*
Alexander S. Rowland, New Jersey. *Physics.*
Atlee Pomerene, Ohio.
Arthur Wellesley Olcott, Missouri.
Lawrence White Bigham, Pennsylvania.

John Campbell Murray, New York.
Ferdinand Jelke, Jr., Ohio.
Eugene Miller, Kentucky.
John Newton Forman, India.
Leonidas Dennis, New Jersey.
George Maclean Harper, Pennsylvania. *English Literature.*
Starling L. Marshall, Kentucky.
Smith Ordway, New York.

FELLOWS.

IN MENTAL SCIENCE.

James M. Baldwin, South Carolina.

IN CLASSICS.

Henry Bell Gayley, Maryland.

IN EXPERIMENTAL SCIENCE.

Alexander S. Rowland, New Jersey.

IN MATHEMATICS.

Alfred G. Reeves, New Jersey.

IN MODERN LANGUAGES.

John Campbell Murray, New York.

IN HISTORY.

Thomas J. McCormick, New York.

IN BIOLOGY.

Rev. John E. Peters, New Jersey.

SENIOR PRIZEMEN.

IN ENGLISH LITERATURE.

George M. Harper, Pennsylvania.

IN SCIENCE AND RELIGION.

William Chester, Washington, D. C.

THE GEORGE POTTS BIBLE PRIZE.

William M. Langdon, New York.
Robert W. VanKirk, Pennsylvania.

LYNDE PRIZE DEBATE.

Robert Kelly Prentice, N. Y., *First Prize.*
Claude M. Thomas, Ky., *Second Prize.*
John M. Harlan, D. C., *Third Prize.*

DEBATERS.

Whig Society.	*Cliosophic Society.*
J. M. Harlan, D. C.	J. M. Baldwin, S. C.
A. G. Reeves, N. J.	Eugene Miller, Ky.
C. M. Thomas, Ky.	R. K. Prentice, N. Y.

BAIRD PRIZEMEN.

The Baird Prize.—James M. Baldwin, South Carolina.

In Oratory.	Job Elmer Hedges, New York.
In Delivery.	Geo. McLean Harper, Pennsylvania.
In Poetry.	Thomas M. Nichols, Pennsylvania.
In Disputation.	Jno. C. Murray, New York, *First Prize.*
	Alfred G. Reeves, New Jersey, *Second Prize.*

Competitors, appointed for Excellence in English Composition: For Baird Prize and Prize for Oratory—J. M. Baldwin, G. H. Carpenter, Wm. Chester, G. M. Harper, A. B. Hobbs, J. C. Murray, A. G. Reeves; *For Prize for Oratory*—L. Dennis, J. N. Forman, H. B. Gayley, J. E. Hedges, C. J. Howell, Jr., S. L. Marshall, T. M. Nichols, R. K. Prentice, A. G. Todd, A. H. Travis, G. E. Woodhull.

JUNIOR PRIZEMEN.

Junior First Honor Scholar.

William B. McIlvaine, Illinois.

Dickinson Prizeman.

Frank S. Woodruff, New Jersey.

Maclean Prizeman.

Clarence W. McIlvaine, Vermont.

Junior Orator Medallists.

Grant R. Bennett, Wisconsin, *First Medal.*
Duncan Edwards, New York, *Second Medal.*
Robert P. Wilder, New Jersey, *Third Medal.*
S. Harper Leeper, Pennsylvania, *Fourth Medal.*

Competing Junior Orators.

Cliosophic Society.	*American Whig Society.*
Duncan Edwards, N. Y.	Grant R. Bennett, Wis.
J. Harper Leeper, Jr., Penn.,	Jno. H. Cleveland, Ky.
Clarence W. McIlvaine, Vt.	Wm. W. Connor, Iowa.
Robert P. Wilder, India.	Jno. K. Mumford, N. Y.

SOPHOMORE PRIZEMAN.

Class of 1861 Prize.

George Black Roddy, Pennsylvania.

FRESHMAN PRIZEMAN.

Freshman First Honor Prize.

William Hallock Johnson, New York.

JUNIOR HONORMEN.

Name.	*Rank*	*Name.*	*Rank*
W. B. McIlvaine, Ill., . .	i.	R. P. Wilder, N. J., . .	x.
C. W. McIlvaine, Vt., . .	ii.	S. N. Knapp, N. Y., . .	xi.
J. W. Bayard, Pa., . . .	iii.	R. E. Carter, N. Y., . .	xii.
J. H. Cleveland, Ky., . .	iii.	H. D. Thompson, N. Y.,	xiii.
G. B. Durell, N. J.,. . .	v.	R. S. Lawrence, Kan., .	xiv.
Jonathan Sturges, N. Y.,	vi.	Sherrerd Depue, N. J., .	xv.
M. B. Nahm, Ky., . . .	vii.	J. E. Hayes, N. J., . . .	xvi.
J. E. Johnson, Jr., N. Y.,	viii.	F. H. Wilson, Pa., . . .	xvii.
C. F. McClumpha, N. Y.,	viii.	Duncan Edwards, N. Y.,	xviii.

JUNIOR HONORMEN, SCHOOL OF SCIENCE.

Name.	*Rank*	*Name.*	*Rank*
J. B. Miles, Ill.. . . .	i.	J. D. Conover, N. J., . .	iii.
C. L. Burger, N. Y. . .	ii.		

SOPHOMORE HONORMEN.

Name.	*Rank*	*School.*
M. C. Fleming, O., . . .	i.	Wooster Univ. and Xenia High School, O.
G. B. Roddy, Pa., . . .	ii.	New Bloomfield Academy, Pa.
R. C. Sheldon, N. Y., . .	ii.	Glidden's Sch., Jamestown, N. Y.
G. A. T. Eddy, N. Y., .	iv.	State Normal School, Brockport, N. Y.
Wilson Farrand, N. J., .	v.	Newark Academy, N. J.
C. R. Erdman, N. Y., .	vi.	Glidden's Sch., Jamestown, N. Y.
A. G. Cameron, N. J.. .	vii.	Professor Cameron.
J. A. Silver, Md., ...	viii.	York Collegiate Inst., York, Pa.
H. C. Elsing, Ill., ...	ix.	Lake Forest Academy, Ill.
J. C. Mathis, Ill., ...	x.	High School, Springfield, Ill.
W. A. Calhoun, Pa., . .	xi.	Jefferson Acad., Canonsb'g, Pa.
J. D. Baucus, N. Y., . .	xii.	Schuylerville High School, N. Y.
Taylor Reed, Pa., . . .	xiii.	Lewistown Academy, Pa.
E. D. Miller, W. Va.,. .	xiv.	Newark Acad., Newark, Del.
J. W. McKechnie, O.,. .	xv.	Wilmington College, Wilmington, O.
W. S. Dodd, N. J., . . .	xvi.	Newark Academy, N. J.
F. F. Kane, Pa., ...	xvii.	St. Paul's Sch., Concord, N. H.
O. S. Strong, N. J., . . .	xviii.	Montclair High School, N. J.
Fred Evans, Jr., Pa., . .	xix.	Franklin High School, Pa.
A. W. Durell, N. J., . .	xx.	Pennington Seminary, N. J.
H. C. Meserole, N. Y., .	xx.	Prep. School, Newburgh, N. Y., H. W. Sigler.
F. B. Everitt, N. J., . .	xxii.	Jamesburg Inst., Jamesb'g, N. J.
S. T. Carter, Jr., N. Y.,	xxiii.	Huntington Union School, L. I.
A. N. Raven, N. Y., . . .	xxiii.	Galesville Univ., Galesville, Wis.

SOPHOMORE HONORMEN, SCHOOL OF SCIENCE.

B. S. COURSE.

Name.	*Rank*	*School.*
E. H. Pershing, Pa., . .	i.	High School, Pottsville, Pa.
W. S. Vanneman, N. J.,	ii.	Collegiate Institute, Salem, N.J.

C. E. COURSE.

Name.	*Rank*	*School.*
H. H. Claxton, N. Y., .	i.	

FRESHMAN HONORMEN.

Name.	*Rank*	*School.*
W. H. Johnson, N. Y., .	i.	Dr. Chapin's Collegiate School, N. Y.
C. H. Macloskie, N. J., .	ii.	Professor Macloskie.
P. L. Sternbergh, Pa., .	iii.	Military Acad., Peekskill, N.Y.
R. B. C. Johnson, W. I.,	iv.	Pennington Seminary, N. J.
Lucien Waggener, Jr., Ky.,	v.	Kentucky Eclectic Inst., Frankfort, Ky.
J. W. Queen, Jr., N. J., .	vi.	State Model Sch., Trenton, N. J.
C. W. Rouse, N. Y., . .	vi.	Lawrenceville School.
James Paige, Minn., . .	viii.	Phillips Acad., Andover, Mass.
A. H. Scofield, N. J., . .	ix.	Rev. C. J. Collins and Williston Sem.

FRESHMAN HONORMAN, SCHOOL OF SCIENCE.

Name.	*Rank*	*School.*
F. W. Jackson, Jr., N. J.,	i.	Newark Acad., S. A. Farrand, Ph.D.

ACADEMIC DEPARTMENT.

ADMISSION.

ENTRANCE EXAMINATIONS.

All entering students on their arrival must report at the President's house and register. Examinations for admission will be both oral and written. The first examination will commence in Princeton on Thursday, June 18th, at 11 A. M., and will continue through the afternoon of Friday. The second will commence on Tuesday, September 15th, at 11 A. M., and continue through the afternoon of Wednesday. Applicants who have any conditions or other deficiencies from the June examination are required to remove them at this time. *Attendance is required at the beginning of the examination.*

Simultaneously with the June entrance examinations in Princeton, examinations will also be held in the following cities, viz.: Pittsburgh, Cincinnati, Louisville, Chicago, St. Louis, Omaha, San Francisco; and elsewhere if necessary. The precise places in which the examinations are to be held can be learned by application to the President. Due notice will also be published in leading newspapers of these cities for several weeks in advance.

Examinations at other times and places than those specified are inconvenient, and often impracticable, and applicants for admission at other than the regular days are required to pay $10 into the treasury.

SUBJECTS.

Candidates for admission to the Freshman Class are examined in the following books and subjects. It is recommended that the candidates be prepared for examination on the requirements as specified; but equivalents will be accepted.

English.

English Grammar—Whitney, or Reed and Kellogg (Higher Lessons); Modern Geography—Guyot's Grammar-School Geography; U. S. History—Scott's or Anderson's Grammar-School History.

The writing of a short essay is required as a part of the examination: the theme for the essay of 1885 will be Fenimore Cooper: His life and any one of his novels.

The attention of Preparatory Schools is called to the need of a more thorough study of elementary English.

Latin.

Latin Grammar: especially the inflections; the simple rules for composition and derivation of words; syntax of cases and verbs and structure of the sentence in general, with particular regard to relative and conditional sentences, Indirect Discourse, and the Subjunctive; so much Prosody as relates to accent, quantity, vesification in general, and Dactylic hexameter. Cæsar (five books of the Commentaries); Sallust (Catiline or Jugurtha); Virgil (six books of Æneid); Cicero's Select Orations (six); Arnold's Latin Prose Composition (twelve chapters). Geography of Ancient Italy.

Greek.

Greek Grammar, including Prosody; Xenophon (four books of the Anabasis), or Greek Reader (Goodwin's) 111 pages; Homer (the first two books of the Iliad, except the Catalogue of the Ships); Greek Composition (Jones' Exercises in Greek Prose, or an equivalent—writing with the accents required); Geography of Ancient Greece and Asia Minor. Goodwin's Grammar is preferred. Special stress is laid upon a thorough knowledge of the noun and verb inflections. Candidates will do well to read an additional book of the Iliad, where this can be done without sacrifice of thoroughness in the formal requisitions. Some experience in giving written answers to set questions is advantageous.

The Continental pronunciation of the vowels and diphthongs is preferred in both Latin and Greek.

Mathematics.

Arithmetic, and the Metric System; Algebra, through Quadratic Equations involving two unknown quantities—including Radicals, and Fractional and Negative Exponents; Geometry, the First and Second Books of Euclid, or an equivalent—that is, the Propositions in other text-books relating to the Straight Line and Rectilinear figures, not involving Ratio and Proportion.

OTHER REQUIREMENTS.

Candidates for admission to any class higher than the Freshman are examined in the previous studies of the Class which they wish to enter, or their equivalents, as published in the last annual Catalogue. Applicants for admission to the Sophomore Class are also examined in the preparatory studies. Applicants for admission to the Junior or Senior Class, *coming from another College*, are examined only in the studies of the year preceding that which they wish to enter. While it is important that the applicants should have studied French, Elementary Anatomy, and Physiology, an examination in these studies is not required.

No person is admitted to the College as a candidate for the Degree of Bachelor of Arts, after the beginning of the first term of the Senior year.

All candidates for admission to any Class, or as special students, must bring with them testimonials of moral character and attainments, preferably from their last instructors; and if the candidate has been a member of another College or University, he must produce a certificate from its President or Faculty that he is free from censure in that institution.

No candidate is admitted into the College without examination and a vote of the Faculty.

Immediately after the opening of the College the entering students meet according to announcement for the registration

of their names and subscription to the following pledge, required by the Board of Trustees:

We, the undersigned, do individually for ourselves promise, without any mental reservation, that we will have no connection whatever with any secret society, nor be present at the meetings of any secret society in this or any other College so long as we are members of the College of New Jersey; it being understood that this promise has no reference to the American Whig and Cliosophic Societies. We also declare that we regard ourselves bound to keep this promise, and on no account whatever to violate it.

ADMISSION TO SPECIAL COURSES.

In exceptional cases, undergraduate students, not members of any one of the four regular classes nor candidates for a degree, are admitted to the privileges of the College, and allowed to take special courses, selected under the direction of the Faculty, in such a manner as to secure full and profitable employment of their time. Such special students undergo a preliminary examination sufficient to ascertain their preparation for the course proposed, and are subject to the same regulations and discipline, and to the same examinations in the studies pursued, as other undergraduates. On completing their course they receive certificates of proficiency. These special courses, however, are not offered to those who have failed in the regular course.

COURSE OF STUDY.

The course for the degree of Bachelor of Arts extends through four Academic years and embraces instruction in the three departments of Philosophy, Language and Literature, Mathematics and Natural Science.

It includes two classes of studies, the required and the elective. The required studies are regarded as fundamental and essential in a liberal education, and therefore are not left to the student's option. The elective studies, though important, are not all indispensable, and accordingly are left, within definite limits, to the student's choice. Attendance is obligatory upon all electives, when once chosen, as well as upon all re-

quired studies. In connection with some departments there are also optional courses, with voluntary attendance.

All the studies of Freshman and Sophomore years are required, and include History, Greek, Latin, Modern Languages, Rhetoric, Mathematics, and Natural History.

From the opening of Junior year onward the student, by availing himself of the elective system, may to a certain extent shape his course with reference to his individual tastes and the profession which he has in view. About two-thirds of the schedule time in this year is given to the required studies, which are Psychology and Logic, English Literature, Physics, and Oratory. In addition to this, students are required to pursue three elective studies, to be selected from the following: Philosophy of History, Greek, Latin, Modern Languages (French and German), Anglo-Saxon, Mathematics, Physical Geography.

In Senior year the range of electives is wider, required studies occupying about one-half the time. The required studies *for the present year* are Science and Religion, Ethics, Jurisprudence and Political Economy, Astronomy, Chemistry, English (Essays), and Oratory. The Senior electives are offered in three groups to assist the choice of students who desire to concentrate their elective work in the Department of Philosophy, or of Literature, or of Science, but no student is required to restrict his choice to any group. *For the present year* the Seniors take in the first term either five or six hours elective work (but not more than four subjects), and in the second and third terms either seven or eight hours (but not more than five subjects);—making their election from the following list: *In Philosophy*—History of Philosophy, Metaphysics, Science and Religion, Comparative Politics, International and Constitutional Law, History of Art; *In Literature*—English Literature, Greek, Latin, French, German; *In Science*—Mathematics, Practical Astronomy, Physics, Applied Chemistry, Laboratory Chemistry, Biology or Palæontology, Histology, and (for this year only) Physical Geography.

In consequence of a rearrangement of the curriculum, the courses in Geology and Physiological Psychology, given to the present Senior Class when Juniors, are not offered this year.

Students are required to choose their electives for the first term at the beginning of that term, and no changes will be allowed after the close of the third week, and none before that time, except for special reasons, approved by the Faculty.

Students are required to hand in writing to the Registrar on or before the first Monday in December, their choice of electives for the ensuing second and third terms, and no changes will be allowed after that date except for special reasons approved by the Faculty.

Optional courses, so ordered as not to conflict with the time allotted to the regular instruction of the course, are offered in connection with several departments. These courses are designed to benefit those who wish to extend their reading or study in certain branches; they amplify the subjects taken up in the regular course, and in some cases conclude with a special examination upon which is based a certificate of proficiency.

The Freshman class recites in divisions constituted according to rank in order to proportion the work to individual ability; rapid progress can thus be made by those who have special aptitudes for certain studies. In awarding the Bachelor's degree and assigning the final rank, the student's work for the whole four years is taken into account.

The following is a statement of the various courses of instruction in the three academic departments:

DEPARTMENT OF PHILOSOPHY.

Mrs. Robert L. Stuart, of New York, has recently given to the College one hundred and fifty-four thousand dollars, to maintain professorships in this department, embracing Ethics, Logic, Metaphysics, the History of Philosophy, and Psychology. She gives this in memory of her late husband, Mr. Robert L. Stuart, and of his brother, the late Mr. Alexander Stuart.

The professorships now established on this foundation are those of Psychology and The History of Philosophy, held by

the President; of Ethics, by Professor Patton, and of Mental Science and Logic, by Professor Ormond.

Besides the undergraduate courses given below, the Department also embraces the courses on Contemporary Philosophy and on Plato, mentioned in connection with the graduate courses.

Psychology.

THE PRESIDENT.

In the first half of Junior year the whole Class is required to take the President's course in Psychology, consisting of lectures and recitations. He begins, as an introduction to the whole department, with explaining the Method to be pursued, which is Induction, with Self-consciousness as the agent of observation. In the first term he uses his text-book on "The Senses External and Internal." In a course of lectures running through half the year he unfolds the nature, the operations and laws of the Faculties of the Mind. I. THE COGNITIVE POWERS: 1. The Simple Cognitive or Presentative: Sense Perception and Self-Consciousness. 2. The Reproductive or Representative: Retention; Phantasy; Association; the Recognitive (Memory); Composition (Imagination); Symbolic (Language). 3. The Comparative, discovering Relations of Identity, Comprehension (whole and parts), Resemblance, Space, Time, Quantity, Active Property, Cause and Effect. II. THE MOTIVE POWERS: 1. The Conscience; 2. The Emotions; 3. The Will.

Physiological Psychology.

THE PRESIDENT, PROFESSORS OSBORN AND SCOTT.

The President begins this elective course, which runs through the second and third terms, and is attended by the Seniors, by showing in opposition to Materialism that we have a means of knowing mind by Self-consciousness just as we have a means of knowing matter by the senses, and that the two possess essentially different properties, while they are closely connected with

each other. Professor Osborn continues with lectures upon the physical structure of the nervous system, including the histology of the nerves and nerve cells, together with an account of the sense organs, of the principal nerve tracts in the spinal cord and brain, the larger internal divisions and the convolutions of the brain. Professor Scott concludes the course with a series of lectures upon the physiology of the nervous system, including the general problems of the origin and transmission of nervous force and the functions of the peripheral nerves, the spinal cord and the brain. Special attention is given to the localization of function in the cerebral cortex. Simple anatomical demonstrations accompany the course.

Owing to rearrangement of the curriculum this course is not offered this year.

Metaphysics.

THE PRESIDENT AND PROFESSOR ORMOND.

This is taught as an elective one hour a week for the second and third terms Senior year. The President opens the course by defining Metaphysics as the Science of First Truths; by classifying these as Primitive Cognitions, Primitive Beliefs and Primitive Judgments. He gives their Tests,—Self-evidence, Necessity and Universality—and explains that they may be considered under three respects, Intuitive Perceptions, Regulative Principles, and Generalized Axioms. The subject is then taken up by Professor Ormond, who applies these principles to great metaphysical and moral truths, embracing such topics as Cause and Effect, and Theism.

History of Philosophy.

THE PRESIDENT.

This is an elective course in the Senior year conducted by the President. Lectures are delivered once a week throughout the year. It discusses: I. The ancient Greek and Roman Philosophies, including the Pre-Socratic Schools; Socrates,

Plato, and Aristotle; and the Academic, Peripatetic, Epicurean, and Stoic Sects. Mayor's "Ancient Philosophy from Thales to Cicero" is used as a text-book. II. Modern Philosophy from Bacon to the present time is taught by lectures with recitations, and embraces Bacon, Descartes, Locke, Leibnitz, Berkeley, Hume, Reid, Kant, Hamilton, and others.

Science and Religion.

PROFESSOR SHIELDS.

Instruction in the Harmony of Science and Religion extends through the second and third terms of the Senior year, and includes both a required and an elective course. The required course embraces (1) the harmony of the physical sciences with natural theology; the Divine Being and attributes as illustrated by astronomy, geology and anthropology; (2) the harmony of the mental sciences with natural religion; the doctrine of a future life, divine government and probation as reconcilable with physical, ethical and metaphysical theories; (3) the harmony of science with revealed religion; the miraculous, prophetical, historical, and philosophical evidences of Christianity, and its consistency with the whole system of the physical and psychical sciences.

The elective course embraces the study of the sciences as connected with revealed religion; their history, classification, and methods; normal and existing relations of reason and revelation; emerging religious controversies in the different sciences, the problem of their adjustment, and the issuing philosophical system.

While the required course aims to vindicate Christian evidences as usually taught in Colleges, the elective course may also have the incidental effect of promoting that sound, ultimate philosophy which results from the harmony of science and revelation and looks to the gradual purification and completion of human knowledge.

The instruction is given chiefly by lectures, with the occasional use of Butler's Analogy as a text-book; and in a part of

the course monthly reviews and extemporaneous essays are introduced.

The Dickinson Prize and the Science and Religion Prize are offered in this department.

Logic.

PROFESSOR ORMOND.

Logic is required in the last half of Junior year. (*a.*) Formal Logic—comprising the Laws of Discursive Thought in Notions, Judgments and Reasonings. The Syllogism and other forms of reasoning will be discussed. Text-book, McCosh's Manual of Logic. Text-book instruction will be accompanied with lectures and practical exercises. (*b.*) Applied Logic—Treating of Logical Method, Induction, Deduction, Demonstration, the canons of investigation and kindred topics. Taught by lecture and practical exercises with references for collateral reading.

Ethics.

PROFESSOR PATTON.

This is one of the required studies of the Senior year. Two hours a week are devoted to it during the first half of the year. Instruction is given by lectures accompanied with the use of Calderwood's Handbook of Moral Philosophy as a text-book. The lectures deal with both Theoretical and Practical Ethics and embrace such topics as The Foundation of Moral Obligation, The Will, Conscience, the Nature of Virtue, and the Moral Law. Special attention is given to recent ethical discussions, and portions of representative ethical treatises are recommended for collateral reading.

Philosophy of History and Political Science.

PROFESSOR SLOANE.

I. *Sophomore Class.* Two exercises a week throughout the first term, required. Outlines of Universal History. Freeman's

General Sketch of History is used as a text-book. Lectures, narratives, and discussions are introduced as occasion requires.

II. *Junior Class.* Two exercises a week throughout the year, elective. Lectures and recitations on Transitional Epochs of History, with special reference to the Science of Politics and the Progress of Civilization.

III. *Senior Class.* Two exercises a week throughout the second and third terms, elective. Lectures and recitations on (1.) The rise and growth of European Colonies in North America and the causes of the War of Independence; (2.) Comparative politics from the standpoint of American institutions.

IV. *Graduate Course.* One exercise a week throughout the first and second terms. Historical methods and historical systems.

Jurisprudence and Political Economy.

PROFESSOR JOHNSTON.

Under this head, a required course will be given to the Senior Class for two hours a week in first and second terms in the Philosophy of Public Law, in its connection with the material interests of the State; and in Political Economy, covering the historical development of the science, in all its phases and schools.

The elective course for two hours a week during the first term, will cover International Law and the History of Diplomacy, from the Peace of Westphalia to the Treaty of Berlin, and the Constitutional Law of the United States, including also the provisions of the State systems, so far as they are necessary to explain the functions of the Federal system.

In 1885 a graduate course in the English Common Law will be available; and under it some consideration will be given to the questions of the individual's legal responsibility as affected by condition, and the legal responsibility of practitioners. An optional course in School Law will also be given by lecture during the Senior year for the benefit of those who intend to follow teaching as a profession.

SCHOOL OF ART.

Its endowment consists of $60,000 from the residuary legatees of the late Frederick Marquand (through Henry G. Marquand). The department aims to establish a museum and to furnish instruction in the history of Art. To this end a Board of Directors has been appointed, consisting of President McCosh, William C. Prime, Henry G. Marquand, Geo. B. McClellan, James W. Alexander, Rev. S. B. Dod, and M. Taylor Pyne. Two Professors have been appointed—William C. Prime, LL.D., and Allan Marquand, Ph.D.

Upwards of twenty thousand dollars have been subscribed towards the erection of a fire-proof building suitable to the purposes of a Museum of Historic Art. As the basis of the museum the College now possesses the Sheldon Jackson collection of North American antiquities, the Van Lennep collection of Greek terra cotta heads, the Maimon collection of Assyrian gems, many examples of Mexican and Peruvian pottery, a large number of photographs and lantern slides, and a few casts. As soon as the building is erected it will receive the Trumbull-Prime collection of pottery and porcelain.

History of Art.

PROFESSORS PRIME AND MARQUAND.

The instruction in this department for the present year will consist of—

I. A few lectures by President McCosh on Æsthetics.

II. A course of public lectures by Professor Wm. C. Prime, on the History of various Arts.

III. Senior elective. Professor Marquand will lecture on the History of Ancient Art, with special reference to the arts of Egypt, Assyria, Greece and Rome. Two exercises a week during the second and third sessions.

IV. During the first session Professor Marquand will conduct a private class of Juniors in the History of Greek Art.

DEPARTMENT OF LANGUAGE AND LITERATURE.

Greek.

PROFESSORS CAMERON, ORRIS, AND WINANS.

Freshman Year.

The Freshman Class is divided into four sections, each of which receives five hours of instruction in Greek every week during the first and second sessions, and four hours a week during the third.

POETRY.—Homer: The Iliad, Books XVI., XVIII., XXII.; Epic Forms and Syntax; Prosody and Scanning; The Homeric Question; Antiquities and Mythology. Two exercises a week during the first and second terms, and one during the third. Professor Cameron.

PROSE.—The Greek Historians: varied selections from Herodotus, Thucydides, and Xenophon, made with an aim to illustrate the best style of the author, and likewise, as far as practicable, to present thus, from the original sources, the history of the most interesting and important epochs,—the rise of the Persian Monarchy, the Persian Wars, Athens under Pericles, opening and closing scenes in the Peloponnesian War, the downfall of Athens. This is followed by a short course of Outlines of Greek History, in English, intended to review and supplement the previous course and to furnish a comprehensive view of the whole subject.

Xenophon's Symposium is read in the third session, accompanied by talks on Greek domestic life.

Also, throughout the year, review of Greek Grammar, with elucidations; Goodwin's doctrine of the syntax of the verb; review of elementary Greek Prose Composition, with written exercises; followed by advanced Greek Prose (Sidgwick's). Three exercises a week. Professor Winans.

NOTE.—As the authors and the amount read during the Freshman year may vary from year to year, the following is indicated as a *minimum* for applicants for Sophomore standing: Homer, Books XVI., XVIII., XXII. Greek Historians, 100 pages, selected at pleasure: one-half, however, to be from Herodotus or Thucydides.

Sophomore Year.

The Sophomore Class is divided into sections, each of which receives four hours of instruction in Greek every week throughout the year.

GREEK ORATORY.—The Olynthiacs and Philippics of Demosthenes; Demosthenes and the political condition of Greece in his time. The Rhetoric of Aristotle, Book III, with analyses and comments; Greek Prose Composition on the basis of the text of Demosthenes, including analyses in Greek of the Olynthiacs and Philippics; Dictations on Greek Lexicology, stating and explaining the laws pertaining to the formation, derivation and definition of the words of the language. The first half of the class recites in two subdivisions, each subdivision four hours a week during the first term; the second half in two subdivisions, each four hours a week during the second and third terms. Professor Orris.

POETRY.—Euripides, the Medea. The Origin of Tragedy; Analysis of the Medea; Life of Euripides. The second half of the class recites two hours a week during the first term, and the first half two hours a week during the second and third terms. Professor Cameron.

PROSE.—Xenophon: the Memorabilia (selections); the times of Socrates; the Socratic Ethics. In the third session, selections from Lucian; society, religion, and literature of the second century, A. D. The second half of the class recites two hours a week during the first term, and the first half two hours a week during the second and third terms. Professor Winans.

Junior Year.

ELECTIVE GREEK.—Attic Tragedy: Æschylus—selected dramas. Lectures on the Works of Æschylus, and on the origin, character and relations to Modern Literature of the Attic Drama. Two hours a week for half the year. Professor Orris.

Attic Comedy: Aristophanes—selected plays, with prolegomena. The relations of Comedy to Tragedy; Aristophanes' criticism of his rivals and of the tragedians; attitude of Aristophanes toward the philosophical, social, and political

movements of his time. Comic Metres. Thucydides, Plutarch, Lucian, may be introduced either as a special course, or to furnish material for sight-reading. Two hours a week for half the year. Professor Winans.

OPTIONAL.—Lyric Poetry, or advanced Greek Prose Composition. Professor Orris.

Senior Year.

ELECTIVE GREEK.—In Senior year there are two independent elective courses, the first occupying one hour a week throughout the year, and the second two hours a week, first term.

TRAGEDY. — Sophocles. The Œdipus Tyrannus. Criticism of the play, the plot, the significance of the tragedy. Description of the Greek theatre. Lectures on the Physical Geography of Greece as affecting the character and language of the people; the origin of the Greek alphabet; the characteristics of the Greek language; Rise and character of Greek literature; Epic poetry; Lyric poetry; History; Tragedy; Comedy; Oratory; Philosophy; Greek Antiquities; Manners and Customs; Remains of Cities and Buildings. Professor Cameron.

GREEK PHILOSOPHY.— Plato: selected dialogues. Lectures on the Philosophy of Plato; on Greek Literature and Philology; on the theories of the Origin of Language, and on the causes which underlie and determine dialectic varieties. Professor Orris.

OPTIONAL.—Theocritus, with a review of his relations to subsequent Poetry. Professor Orris.

SCHOOL AT ATHENS.

This College, in connection with others, assisted in establishing, and contributes to the support of the American School of Classical Studies at Athens. This school affords facilities for archæological and classical investigation and study in Greece, and graduates of this College are entitled to all its advantages free of tuition. Professor Sloane represents Princeton in its Managing Committee.

Latin.

PROFESSOR PACKARD, PROFESSOR WEST, AND MR. MOORE.

Instruction given in the Department of Latin Language and Literature and Science of Language, involves,

First—The constant training of classes in the Etymology and Syntax of the language, and in the power to translate it accurately and fluently into idiomatic English.

Second—Instruction in Latin Prose Composition. The object here aimed at is not facility in writing Latin as a mere accomplishment, but rather the acquisition of power to translate at sight any ordinary Latin into fluent literary English, and also to think easily in the Latin order of thought.

In the Freshman year written exercises form the basis of instruction. These exercises are always examined in order to leave no errors uncorrected. Practice in extemporaneous composition, both oral and written, is continually attempted, on as extensive a scale as the student's grammatical knowledge permits.

In the Sophomore year the instruction proceeds to a higher plane in two ways :—first, by an examination and treatment of the Period in all its forms and with all its leading dependents ; —second, by an examination of the more obvious laws of style, especially in the historical, oratorical and epistolary varieties. In connection with this, written and oral practice, with regular recitation, is insisted upon. Thematic composition, in its higher forms, is reserved for later optional study.

Third—The reading and interpretation of particular authors, whether literary or historical, or both combined. This implies, as collateral branches of study, the History of Roman Literature and the Archæology of Roman Life, social and political. Roman History is studied in its three leading periods ; first, in connection with portions of Livy's Histories, the early history down to the times of the Gracchi ; second, in connection with Cicero's Letters, the period from the Gracchi to the Empire ; and, third, in connection with Juvenal's Satires and Pliny's Letters, the earlier Empire, especially its moral and religious aspects in contrast with Christian Truth and Christian Life.

The exercises with the two lower classes are chiefly recitations, accompanied, or rather interspersed with constant communication of collateral illustrative instruction suggested by the text-book, calculated to quicken and broaden the interest of the student; with care, however, not to infringe upon the frequency and thoroughness of the recitations required of the student. Occasional lectures of a more formal character are introduced in the Sophomore year. These treat, in connection with Cicero's Letters, the representative characters and historical scenes and topics there found; and in connection with Horace, the History of Literature down to his time, his contemporaries, the introduction and influence of Greek, especially Alexandrian, literature at Rome, and his own characteristics as to topics, style, views of life, etc.

In reading Terence and Plautus, translation is desired as close to literary English as the comic style and sentiment will allow; and to this end the class is required to read large portions in review and at first sight in advance work. Practice is given in reading the comic metres in order to show their high dramatic and linguistic value, especially as bearing upon the colloquial pronunciation of Latin. Among other topics investigated are the principles of language-change embodied in the metres, the literary obligations of Terence to Plautus, and of both to early Latin literature and the Greek comedians, the social life of Rome in the second century B. C., and the relations of ancient to modern comedy.

In the Junior year lectures are more frequent; in connection with Juvenal and Pliny, treating of the other sources of our more intimate knowledge of the social and moral condition of the Empire in Italy and the Provinces; and, in connection with such of Cicero's rhetorical, ethical, or religious treatises as are read, treating of literary life and training at Rome, the sources and character of Roman Philosophy, and the Religion of Rome. In the Senior year lectures occupy about one-third of the time, being in part illustrative of Lucretius, but chiefly upon the Science of Language, its General Principles; Physiology of Speech; Phonetic Laws; Formation of Words; History of Inflections; Comparative Laws of Syntax.

The authors used in the order of the curriculum are Livy; Horace's Odes; Virgil, Æneid (latter half); Selected Letters of Cicero; Terence; Horace's Satires and Epistles; Tacitus; Juvenal's Satires; Selected Letters of Pliny; Suetonius; Plautus; Cicero's Treatises (De Oratore, De Natura Deorum, De Fato, etc., varying from year to year); Lucretius, De Rerum Natura; Bruns, Fontes Juris Romanæ, with use of Corpus Inscriptionum Latinarum, and Ritschl, Priscæ Latinitatis Monumenta; Selections from Seneca's Moral Epistles; also from Tertullian and St. Augustine. Early sources of Roman Law.

The instructors suggest questions for special investigation, and designate volumes and parts of volumes, illustrative of the author or period under study, to be read in private by the class during the term, upon which questions are put in examination papers, eliciting extended written answers.

On two evenings of each week such students as wish, meet with Professor Packard for the study of some Latin work collateral with the class-room exercises. The Sources of Roman Law constitutes the Graduate course for the present year.

English Literature.

PROFESSOR MURRAY.

The study of English Literature is pursued during the Junior year, and through the first term of the Senior. It includes both a required and an elective course.

Junior Year.

The required course extends through the year, occupying two hours a week. In the first term special attention is given to the study of Chaucer, in order to gain some knowledge of the English language at that stage of its development; mainly, however, for the sake of his poetry. In addition to lectures, some of Chaucer's poems are read in the class room. After Chaucer, Spenser and the English Drama before Shakespeare are the subjects of study.

In the second and third terms lectures are given on Elizabethan Dramatists, on Bacon, Milton, and Dryden. The great

writers of the Queen Anne Period are also discussed. The required course ends with study of the Literary Restoration under Cowper, Burns and Wordsworth, and of some representative authors of the Victorian Period, especially Tennyson and Thackeray.

During the third term a play of Shakespeare is studied in the class room, with reference to a further study of Shakespeare in the Senior year.

Senior Year.

The elective course, to which two hours a week through the first term are assigned, is mainly devoted to critical study of Shakespeare's plays. The choice of these varies from year to year, care being taken that one representative of each form of Drama, Tragedy, History, and Comedy shall always be studied. Those to be read this year are *Macbeth*, *King John* and the *Merchant of Venice*.

An optional class is formed during the second term, for reading authors not treated in the class room. Essays also are required from both the Junior and Senior classes, in which literary subjects chiefly are discussed.

A graduate course is in preparation, comprising lectures on the following subjects:

1. Comparative Literature.
2. Dramatic Literature.
   (*a.*) The Plays of Marlowe.
   (*b.*) Shakespeare's Historical Plays.
   (*c.*) The Comedies of Ben Jonson.
3. American Literature.

Rhetoric and English Language.

PROFESSOR HUNT.

Freshman Year.

The elements of Rhetoric are studied as embraced in the following subjects: Diction, Sentences, Figures, Laws and Processes of Discourse This instruction is given by text-book

and lecture. The historical study of English Words, as given in Trench, (Study of Words, Select Glossary,) is also pursued. Essay writing is an essential part of the course, and is continued through the year.

Sophomore Year.

The study of Rhetoric is continued by lecture and text-book in the discussion of its leading principles. The study of the English Language is also pursued by text-book and lecture. This latter course embraces such topics as the Study of Words; their rise and decline; their distinctions and practical uses; English spelling and pronunciation; English etymology and affixes. English composition is continued through the year.

Junior Year.

The study of Anglo Saxon as an elective branch is begun. On the basis of March's text-books the student is drilled in the forms and principles of grammar, and taught to read with ease the best prose and poetry of First English. In connection with this grammatical and textual study, instruction is given by lecture on a large variety of subjects—philological and historical—rightfully included in such a course. The students are also encouraged to private reading on any of the topics presented in the class-room.

Oratory.

PROFESSOR RAYMOND.

Freshman Year.

First Term. Weekly lectures and drill in Elocution, explaining the meanings and teaching the methods of Gesture and Vocal Emphasis, with Readings and Declamations required from all the class. Text-book, Raymond's Orator's Manual.

Sophomore Year.

Exercises by divisions of the class made according to degrees of proficiency. Two private Rehearsals of Declamation and one

written Oration required from all. Optional instruction in Vocal Culture.

Junior Year.

Oratorical Composition and the Analysis and Illustration of Themes, taught by lecture and private criticism. One written Oration and two Rehearsals in Delivery required from all. Optional Rehearsals; Exercises in Vocal Culture; Lectures (begun the second term) on Poetry as a Representative Art.

Senior Year.

Course of the Junior year continued. Two written Orations; Private Criticisms and Rehearsals, and Public Speaking before the whole college, with prizes in Oratory, Delivery, Poetry and Disputation (See "Prizes and Competitive Scholarships"). Between fifteen and twenty of the best writers and speakers among the highest honormen are assigned parts at commencement. Optional Rehearsals; Exercises in Vocal Culture; Lectures on the Principles of Æsthetic Criticism, with illustrations from the different arts.

Exercises in English Composition.

These are corrected, by the Professor either of English Literature, Rhetoric, or Oratory, and are required as follows, viz.: Freshman year, five or six Essays; Sophomore year, five or six Essays and one Oration; Junior year, five Essays and one Oration; Senior year, two Essays and two Orations. In every year of the course several prizes or honorary appointments are given for excellence in essay writing and in public address, either by the College, or by the Cliosophic or American Whig Societies, acting through committees appointed from their own members in the Faculty. (See heading "Fellowships, Prizes, Scholarships.")

Modern Languages and Literature.

PROFESSOR KARGÉ.

This department comprises the study of the French and German languages. The former begins as a required study in

the Sophomore year. The number of hours devoted to class instruction is two each week throughout the year, and to make the work more effective, recitations are conducted in divisions of thirty students each. For a better apprehension of the thought as well as greater facility in the use of the language, oral and written recitations alternate.

With the close of the Sophomore year, students are required to pass a final examination which embraces the essential parts of descriptive grammar, special stress being laid on a thorough knowledge of the verb and its construction,—besides fluency in rendering ordinary French into English at sight.

In the Junior year, the study of Modern Languages is elective. The student who elects this branch continues, for two hours a week during the first term, the French course, which consists in reviewing grammar and in reading Lacombe's Petite Histoire du Peuple Francais and Racine's Athalie, the latter in order to aequaint him with the elegancies of the language, and to give him an incentive to independent study.

At the close of the first term the final examination in French is passed, and the German language takes its time and place.

The course in German embraces the acquisition of the preliminary rules of grammar, pronunciation, written exercises and translation. The third term is devoted to reviewing the work done in German during the previous term.

Modern Languages continue to be elective in the Senior year. The possession of sufficient preliminary knowledge of the language is necessary for admission to these electives. French occupies two hours a week for the first term and German two hours a week for the second and third terms. The earlier part of each course is devoted to a critical reading of dramas from the works of eminent writers, such as Corneille, Racine, Molière, Lessing, Schiller and Goethe.

The students having obtained an appreciation of the merits of these authors, a course of lectures on the history and literature of these languages is delivered, embracing the salient points of their growth, development, and the influence they have exerted upon modern civilization.

DEPARTMENT OF MATHEMATICS AND NATURAL SCIENCE.

Mathematics.

PROFESSOR DUFFIELD, PROFESSOR ROCKWOOD, MR. DANIELS, AND MR. FINE.

In the Freshman year there are two exercises a week in Algebra during the second term, and one a week during the third term, under Professor Rockwood. In Geometry there are three exercises a week during the first term and two during the second term, and three a week in Plane Trigonometry during the third term, under Mr. Fine. The text-book in Algebra is Wells' University Algebra. Euclid is used as the text-book in Geometry both because of its historical associations and its decided superiority for the purpose of mental discipline to any modern text-book. The first six and the eleventh books of Euclid are supplemented by a course in Spherical Geometry. Since a thorough knowledge of Geometry and familiarity with its more important Propositions can be obtained only by extended practice in the demonstration of theorems and problems not contained in the text-book, this exercise occupies a prominent place in our course of instruction.

The Sophomore Class has three exercises a week throughout the year in Mathematics, under Professor Duffield. For the first term the studies are Analytical Trigonometry, Mensuration and Navigation; for the second and third terms, Surveying, including Levelling and Laying out Railway Curves, Spherical Trigonometry, Analytical Geometry, and the elements of the Differential Calculus.

In the Junior year, Mathematics is an elective study. The class has two exercises a week throughout the year under Professor Duffield. For the first and second term the studies are Analytical Geometry and the Differential Calculus; for the third term, the Integral Calculus. During the Sophomore and Junior years, Loomis' series of text-books is used—supplemented largely by oral instruction, and numerous exercises in addition to the Examples for Practice of the text-books.

The Senior Class in Mathematics (elective) has three exercises a week throughout the second term under Mr. Daniels. The course for the current year is Analytical Geometry of Three Dimensions, Differential and Integral Calculus (Byerly), and a short course in Determinants.

A characteristic feature of our method of teaching Mathematics is the prominence given to oral instruction. Throughout the course, lectures on the history as well as on the principles of the different branches of study are given by the instructors.

Astronomy.

PROFESSOR YOUNG AND MR. MCNEILL.

General Course—Required.

This course occupies three hours weekly during the first term, and one hour weekly during the second and third terms. The exercises consist of recitations from Newcomb and Holden's "Astronomy for High Schools and Colleges," supplemented by lectures.

In the first term the principal subjects treated are astronomical instruments, the methods of finding time, latitude and longitude, the earth in its astronomical relations, and the moon. In the second and third terms the sun, the planetary system, and the fixed stars are discussed.

The aim of the course is to impart a knowledge of the most important facts of the science, with an understanding of its principles, but the higher mathematics of the subject are not attempted. The class have frequent opportunities for examining the most interesting objects with the telescope.

Practical Astronomy—Elective.

One exercise weekly during Senior year. Text-book, Loomis' "Practical Astronomy." The exercises consist of lectures upon the various instruments and their uses, with recitations from the text-books, and the discussion of the observations made by the class.

When the weather permits, each member of the class is required to spend from two to six hours weekly in making and

reducing observations. The principal subjects embraced in the course are the following:

I. SEXTANT AND REFLECTING CIRCLE.

(a) Adjustment and errors.

(b) Determination of local time by altitudes of the sun (or stars).

(c) Latitude by circum-meridian altitudes of sun.

(d) Latitude by altitude of the pole star and a corresponding southern star.

II. TRANSIT INSTRUMENT.

(a) Theory of errors and adjustment.

(b) Determination of local time by star observations, the azimuth correction being determined by a pair of circumpolars.

(c) *Reduction of a complete set of time observations by the method of least squares.*

III. THE ZENITH TELESCOPE.

(a) Determination of latitude from star observations, the instrumental constants being independently determined.

(b) *Determination of latitude, together with the instrumental constants; by observations reduced by the method of least squares.*

IV. PRIME VERTICAL INSTRUMENT.

Determination of latitude and instrumental constants by star observations.

V. ASTRONOMICAL THEODOLITE.

(a) Azimuth by observations of the pole star.

(b) *Latitude and time by Gauss' "three-star method."*

VI. MERIDIAN CIRCLE.

(a) Determination of instrumental constants.

(b) Determination of star places (right ascension and declination), including the reduction of apparent place to mean.

(c.) *Investigation of errors of graduation and periodic errors of micrometer screw.*

VII. EQUATORIAL.

(a) Adjustment of the instrument.

(b) Determination of the place of a comet or minor planet by the ring micrometer.

(c) Study of the spectra of sun spots and solar prominences.

(d) *Measurement of double stars with the wire micrometer.*

VII. MISCELLANEOUS.

(a) Value of level divisions determined with the "level-trier."

(b) Determination of personal equation with Eastman's personal equation machine.

(c) *Form and size of transit instrument pivots determined with pivot spherometer.*

NOTE.—The italics denote problems regarded as supplementary. For want of time they are not generally all taken by any one member of the class, but are distributed according to circumstances.

Physics.

PROFESSOR BRACKETT AND MR. MAGIE.

Junior Year.

Prescribed Course.—This course is conducted by means of recitations and lectures. Anthony and Brackett's Elementary Physics is used as a text-book. The subjects treated are:

First term—Elementary Mechanics; General Properties of Bodies; Hydrodynamics; Pneumatics; Heat and Thermodynamics.

Second term—Magnetism; Electrostatics; Electrodynamics.

Third term—Acoustics; Optics.

The valuable and well selected apparatus with which the department is supplied, is constantly employed to illustrate and enforce the principles discussed.

Four hours a week during the first term, and three hours a week during the second and third terms are allotted to this course.

Senior Year.

ELECTIVE COURSES.—These courses, in general, involve practical work in the Physical Laboratory. They afford opportunity for the extended study of special topics.

The students pursuing the laboratory courses are referred to Kohlrausch's Physical Measurements, Einleitung in die Prak-

tische Physik—Pscheidl, etc., and to the special manuals and memoirs accessible in the Library of the College. In addition, recitations upon Cumming's Theory of Electricity are required from those studying Electricity.

The following are among the problems ordinarily assigned: Determination of the intensity of the force of gravity at Princeton, by the method of Kater and by that of Borda; determination of the modulus of elasticity for different metals; determination of the magnetic declination, and the horizontal component of the Earth's magnetism, by the magnetometer; determination of the magnetic dip and the total magnetic force by means of the dip circle; measurement of the electro-motive force of various elements in absolute units by means of the absolute electrometer, and by means of the quadrant electrometer; measurement of elective currents by means of the voltameter; verification of Faraday's laws of electrolysis; determination of the efficiency of the dynamo-machine; measurement of the work expended in maintaining an incandescent lamp in action, (1) by means of the electric relations of the circuit, (2) by means of the calorimeter; determination of index of refraction by several methods; verification of Fresnel's researches in diffraction, with discussion; measurement of wave lengths of light by simple diffraction methods, and by means of the spectrometer; examination of the phenomena and laws connected with polarized light.

Those electing these courses are expected to devote at least two hours a week to laboratory work. At the close of the year each student is required to present a thesis discussing some problem previously assigned.

Chemistry.

PROFESSOR SCHANCK.

Students in the Academic Department attend a required course in General Chemistry throughout the entire Senior year, and an elective course in Applied Chemistry during the second and third terms.

The course of instruction in General Chemistry occupies two hours in the class-room each week, and in this course the attempt is made to give quite fully the leading principles and facts of General Chemistry, enforced by carefully prepared experimental illustrations. Besides these table illustrations, free use is made of Lantern projections, and recitations and written examinations are required. The advantage of taking notes and of reading, in connection with the lectures, such works as Roscoe's, Fowne's, Wurtz's, Miller's, and Roscoe and Schorlemmer's, is appreciated and urged upon the class.

The additional parallel and elective course, embracing the leading applications of Chemistry in the arts of life, also illustrated fully, occupies one hour each week second and third terms.

Laboratory Chemistry.

PROFESSOR CORNWALL; DR. MCCAY, ASSISTANT.

This branch of Chemistry constitutes an elective study throughout the Senior year. The course includes lectures, with occasional recitations, and also work in the Laboratory. During the first term, qualitative chemical analysis is taken up, the students learning to detect single bases and acids, acquiring thereby sufficient training to pursue further the study of qualitative analysis without supervision, should they desire to do so. At the same time they are required to explain fully, by chemical formulas and written explanations, all of the reactions involved in making the tests.

During the second and third terms, experiments illustrating principles of General Chemistry and Chemical Physics are first performed by the students, after which the most important classes of organic compounds are studied, and finally a few special examinations are made, such as: Analysis of potable waters; examination of milk; study of the general properties of the alkaloids, with a few characteristic tests; properties of disinfectants, etc. The object of the course is to train the student, as far as possible, in chemical manipulation by means of experiments which shall both illustrate chemical principles and

furnish practical knowledge likely to be of use in any subsequent professional or scientific study.

The course requires about four hours a week; three hours being generally devoted to laboratory work, and one hour to lectures or recitations.

Geology and Palæontology.

PROFESSORS SCOTT AND OSBORN.

I. GEOLOGY.—The course in Geology, conducted by Professor Scott, occupies three hours a week through the last half of the Senior year. The subjects treated are (1) Dynamical Geology; (2) Structural Geology, including Lithology and Petrography; and (3) Historical Geology and Palæontology. The text-book used is Le Conte's Elements of Geology (revised edition).

N. B.—This course, which was given to the present Senior Class in their Junior year, is consequently omitted for the current year.

II. PALÆONTOLOGY.—The course in Palæontology, is one of the elective studies of the Senior Class, and occupies about three hours a week throughout the year, including one lecture and two hours of laboratory work a week. This course, under Professor Scott, is devoted chiefly to the subject of Vertebrate Palæontology and Anatomy, and is a continuation and expansion of the course of the Junior year on Historical Geology. Two hours a week are given to the laboratory work under the direction of Professors Osborn and Scott. This is a parallel course of anatomical study, with dissection of the fishes, reptiles, birds and mammals, which represent living groups and throw most light upon the structure and development of the fossil vertebrates as described in Professor Scott's lectures. The dissections are accompanied by demonstrations and drawings. Practical work is also carried on in the zoölogical and geological museums, and a new feature of the course this year is a series of museum demonstrations with explanations and comments upon the specimens in various collections. At the close of the course a short original thesis on one of the fossil vertebrates in the E. M.

Museum is required of each student and takes the place of the lectures and practical work of the third term. The text-books employed are Huxley's Anatomy of the Vertebrates, Parker's Zoötomy and Wiedersheim's Lehrbuch der vergleichenden Anatomie.

For advanced students there are especial facilities for study in the large number of undescribed fossil Vertebrates collected in the West by the three scientific expeditions sent out by the College in 1877, 1878 and 1882.

Physical Geography.

PROFESSOR LIBBEY.

This course occupies two hours each week throughout the second and third terms of Junior year, as an elective study. It consists of the study of the Earth in the Age of Man, comprising two parts:

A. THE GEOGRAPHY OF NATURE, or Physical Geography proper.

1. The Earth in the Solar system; Astronomical Geography, especially with reference to Climatology.

2. The Earth as a whole, or Physics of the Globe; its form, dimensions, density, and weight; its proper temperature, volcanoes and earthquakes; its magnetism.

3. The surface of the earth.

a. The Lands, their arrangement; morphology of the continents; laws of relief.

b. The Waters and their movements; Inland waters and continental drainage; Oceanography; Tides and marine currents:—the facts and their causes.

c. The Atmosphere; Climatology; Laws of distribution of temperature; Winds and Rains; Snow, ice and glaciers.

4. Laws of the distribution of life. Plants and Animals.

B. GEOGRAPHY OF MAN, or the relations of Physical Geography to the History of mankind; Human races, characteristics and law of distribution, contrasted with the distribution of life in nature; the historic races and their functions in history. The continents as instruments for the development of human

societies. The continents of Nature: Africa, South America, Australia. The continents of History: Asia, Europe, North America. Their special functions in the progressive development of mankind.

Lectures and recitations, with oral and written examinations. Text-books,—Physical Geography, Guyot; Earth and Man, Guyot. Both courses are abundantly illustrated by maps and diagrams; and an optional course of lectures is given in which the lantern is used to illustrate the phenomena treated of in the regular course by means of a series of views from nature, numbering upwards of four thousand.

Owing to rearrangement of the curriculum this course is also offered as a Senior elective for the current year.

Biology.

PROFESSORS SCHANCK, MACLOSKIE, OSBORN, AND SCOTT.

The required studies in this branch are included in a course which occupies one hour a week through the Sophomore year. Professor Schanck opens the course with a series of lectures, illustrated by models and diagrams, upon Human Anatomy and Physiology. Professor Macloskie resumes the work during the second term in a series of lectures on Elementary Zoölogy. In the third term Professor Macloskie conducts a series of recitations in Botany, accompanied by practical work in the examination of plants. In the Senior year students may elect either Biology, or Palæontology. The latter is conducted by Professor Scott, with practical biological work under Professor Osborn. (See Course in Geology.)

The elective course in Biology is conducted by Professor Macloskie with the coöperation of Professor Osborn. This course occupies two required and three optional hours a week, and the subjects are divided as follows: (1) Structural Botany and the Invertebrate Animals, under Professor Macloskie, including the structure and physiology of the principal plant-

types and types of Invertebrates; among the latter are such forms as the Amœba, the Lobster, the Locust, the fresh-water Mussel, and the Ascidians. The laboratory work connected with this study includes dissection and the use of the microscope upon the typical plant and animal forms. (2) The second part of the course, under Professor Osborn, opens in February, and consists of ten lectures upon the general anatomy of the Vertebrates, upon the influences of natural environment, and upon the history of the theory of development of living types.

The practical work is upon Embryology and covers a microscopic study of the early development of the chick, following the course laid out in Foster and Balfour's Elements of Embryology and obtaining embryos by the aid of an incubator.

During the second term an optional course of lectures on the Embryology of the Vertebrates will be given by Prof. Scott.

Histology.

PROFESSOR LIBBEY.

This study is an elective, occupying one afternoon each week during the first term of Senior year, and consists of lectures and recitations upon Normal Histology. Only the normal tissues are discussed, and as wide a range of comparative study of the tissues in the animal kingdom is made as the time allotted permits. Especial attention is devoted to injecting, hardening, preserving, staining and mounting specimens, and students are carefully drilled in section-cutting and in the use of the microscope, every facility being placed in their hands to enable them to do good work.

The lecture occurs on Wednesday afternoon of each week at 3 o'clock, but the laboratory is open at all hours to its regular students for private investigation, and the instructor or the Biological Fellow will be present every afternoon to give assistance to those who may be present. A fee of $10 is charged to cover mounting, material, slides, &c.

Text-books recommended,—Klein, Prudden, Shakespeare-Allen, Stirling, Stricker.

SYNOPSIS OF COURSE.

FRESHMAN YEAR.

First Term.

LATIN—Livy, (Book I). Roman History (Ihne's Early Rome). Virgil: (Æneid, VII–XII). GREEK—Homer's Iliad, (Books XVI, XVIII, XXII). Selections from Herodotus, Thucydides, Xenophon; Greek Grammar; Greek Prose Composition. MATHEMATICS—Geometry (Todhunter's Euclid). ENGLISH—Rhetoric (Hart or Haven); Trench (Study of Words). Essays. ORATORY—Lectures, and Drill in Elocution.

Second and Third Terms.

LATIN—Livy, (Books XXI, XXII). Roman History (Smith's Rome and Carthage). Cicero: De Senectute, De Amicitia. Horace: Odes (three Books). Latin Prose Composition. GREEK—Homer's Iliad; Herodotus, Thucydides, Xenophon, selections. Outlines of Greek History. Greek Prose Composition (Sidgwick's). MATHEMATICS—Algebra, (Wells'). Geometry (Todhunter's Euclid). Ratio and Proportion. Spherical Geometry. Plane Trigonometry. ENGLISH—Trench's Select Glossary. Essays. FRENCH—Grammar (Substantive, Adjective, Numeral, Pronoun), with oral and written exercises.

SOPHOMORE YEAR.

First Term.

LATIN—Selected Letters of Cicero. Roman History from the Gracchi to Augustus. Terence: Heautontimorumenos. Latin Composition. GREEK—Demosthenes: the Olynthiacs and Philippics. Rhetoric of Aristotle, selections. Word-Formation. Laws of Phonetic change. Greek Composition. Euripides: The Medea. Xenophon's Memorabilia. MATHEMATICS—Analytical Trigonometry, Mensuration and Navigation. ENGLISH—Essays. FRENCH—Grammar completed. Dumas: Napoléon. HUMAN ANATOMY AND PHYSIOLOGY. HISTORY—Freeman's General Sketch. ORATORY—Elocution. Declamations. Written orations.

Second and Third Terms.

LATIN—Horace: Selected Satires and Epistles. Terence: Andria. Latin Composition. Tacitus: Agricola and Histories. GREEK—Demosthenes: the Olynthiacs and Philippics. Rhetoric of Aristotle: Selections. Word-Formation. Laws of Phonetic Change. Greek Composition. Euripides: The Medea. Xenophon's Memorabilia. Dialogues of Lucian (Williams' Selections). MATHEMATICS—Surveying. Spherical Trigonometry. Analytical Geometry. Elements of the Differential Calculus. ENGLISH—Principles of Discourse (Hunt). Lectures on English Language and Style. Essays. FRENCH—Syntax. Dumas: Napoléon. ZOÖLOGY and BOTANY. ORATORY—Elocution. Declamations. Written orations.

JUNIOR YEAR.

First Term.

REQUIRED STUDIES.

PSYCHOLOGY—McCosh's "The Senses" and "Intuitions of the Mind." ENGLISH LITERATURE—Chaucer. Lectures. Essays. PHYSICS. ORATORY—Analysis and Composition of Themes. Theory and Practice.

ELECTIVE STUDIES.

In Philosophy—PHILOSOPHY OF HISTORY.

In Literature—LATIN—Cicero De Natura Deorum and De Fato. GREEK—Æschylus: selected dramas. Lectures on the Attic Drama. FRENCH—Syntax. Racine's Athalie. Corneille's Cid. GERMAN—Grammar. Oral and written translations from English into German. Whitney's German Reader. ANGLO-SAXON—March's Anglo-Saxon Grammar and Reader. Caedmon's Exodus and Daniel (Hunt). Beowulf (Harrison). Lectures on First English.

In Science—MATHEMATICS—Analytical Geometry.

Second and Third Terms.

REQUIRED STUDIES.

PSYCHOLOGY—(Concluded). LOGIC—McCosh's Manual. ENGLISH LITERATURE—Lectures. Essays. PHYSICS. ORATORY—Criticism, Written Orations, Delivery.

ELECTIVE STUDIES.

In Philosophy—PHILOSOPHY OF HISTORY.

In Literature—LATIN—Juvenal, with History of the Empire. Selected Letters of Pliny. Suetonius. Plautus: The Mostellaria. GREEK—Aristophanes: Clouds, Frogs. FRENCH—Syntax. Racine's Athalie. Corneille's Cid. GERMAN—Grammar, and Prose Composition. Whitney's German Reader.

In Science—MATHEMATICS—Differential and Integral Calculus. PHYSICAL GEOGRAPHY.

SENIOR YEAR.

First Term.

REQUIRED STUDIES.

ETHICS—Calderwood's Moral Science. Lectures. JURISPRUDENCE AND POLITICAL ECONOMY—Lectures. ENGLISH—Essays. ASTRONOMY—Newcomb and Holden's. Lectures. CHEMISTRY—Fowne's. Roscoe's. Wurtz's. Miller's. ORATORY—Criticism, Written Orations, Public Address.

ELECTIVE STUDIES.

In Philosophy—HISTORY OF PHILOSOPHY—Ancient. (Mayor's History of Ancient Philosophy). INTERNATIONAL AND CONSTITUTIONAL LAW—Gallaudet's Manual. Lectures.

In Literature—ENGLISH LITERATURE—Shakespeare. GREEK—Sophocles. Œdipus Tyrannus. Aristotle's Ars Poetica. Plato: Selected Dialogues. Greek Literature and Philology. FRENCH—Translations from Sadler's "English into French." Critical Review of the French Drama. Lectures on the History and Literatnre of the Language.

In Science—ASTRONOMY—Practical. PHYSICS—Practical course in the Laboratory. LABORATORY CHEMISTRY. BIOLOGY or PALÆONTOLOGY. HISTOLOGY.

Second and Third Terms.

REQUIRED STUDIES.

SCIENCE AND RELIGION—Lectures and Recitations. JURISPRUDENCE AND POLITICAL ECONOMY—Lectures. ENGLISH—Essays. ASTRONOMY—Newcomb and Holden's. Lectures. CHEMISTRY.

ELECTIVE STUDIES.

In Philosophy—HISTORY OF PHILOSOPHY—Modern. SCIENCE AND RELIGION—Lectures. COMPARATIVE POLITICS. METAPHYSICS. HISTORY OF ART—Ancient.

In Literature—LATIN AND THE SCIENCE OF LANGUAGE—Lucretius. Lectures on general principles of Philology and on Comparative Inflection and Syntax. GREEK—Sophocles: Œdipus Tyrannus. Greek Literature. GERMAN—Review of Grammar. Lessing: Minna von Barnhelm. Goethe: Hermann und Dorothea. Faust, first part. Schiller's Jungfrau von Orleans. Lectures on the History and Literature of the Language.

In Science—MATHEMATICS. ASTRONOMY—Practical. PHYSICS—Practical course in the Laboratory. APPLIED CHEMISTRY. LABORATORY CHEMISTRY. BIOLOGY or PALÆONTOLOGY.

EXHIBIT OF STUDIES FOR THE FOUR ACADEMIC YEARS.

NOTE.—The numbers indicate hours per week.

FRESHMAN YEAR STUDIES.

ALL REQUIRED.

First Term.		*Second Term.*		*Third Term.*	
Latin,	4	Latin,	6	Latin,	6
Greek,	5	Greek,	5	Greek,	5
Math.,	4	Math.,	4	Math.,	4
English,	2				
Total hours,	15		15		15

SOPHOMORE YEAR STUDIES.

ALL REQUIRED.

First Term.		*Second Term.*		*Third Term.*	
Latin,	3	Latin,	3	Latin,	3
Greek,	4	Greek,	4	Greek,	4
Math.,	3	Math.,	3	Math.,	3
History,	2	English,	2	English,	2
French,	2	French,	2	French,	2
Anatomy,	1	Zoölogy,	1	Botany,	1
Total hours,	15		15		15

JUNIOR YEAR STUDIES.

I. REQUIRED.

First Term.		*Second Term.*		*Third Term.*	
Physics,	4	Physics,	3	Physics,	3
English,	2	English,	2	English,	2
Psychology,	2	Psych. & Logic,	3	Logic,	3
Hours req'd	8		8		8

II. ELECTIVE.

(The student selects three subjects.)

Latin,	2	Latin,	2	Latin,	2
Greek,	2	Greek,	2	Greek,	2
Math.,	2	Math.,	2	Math.,	2
Mod. Lang.,	2	Mod. Lang.,	2	Mod. Lang.	2
History,	2	History,	2	History,	2
Anglo-Saxon,	2				
		Phys. Geog.,	2	Phys. Geog.,	2
Hours elect.,	6		6		6
Total hours,	14		14		14

SENIOR YEAR STUDIES.

I. REQUIRED.

First Term.		*Second Term.*		*Third Term.*	
Astronomy,	3	Astronomy,	1	Astronomy,	1
Chemistry,	2	Chemistry,	2	Chemistry,	2
Ethics,	2	Sc. and Rel.	2	Sc. and Rel.	2
Jur. and Pol. Ec.	2	Jur. and Pol. Ec.	2		
Hours req.	9		7		5

II. ELECTIVE.

(The student selects 5 or 6 hours, but not more than 4 subjects in first term; and 7 or 8 hours, but not more than 5 subjects for second and third terms).

I. Philosophy.

Hist. Philos.	1	Hist. Philos.	1	Hist. Philos.	1
In. & Con. Law,	2	Metaphysics,	1	Metaphysics,	1
		Sc. and Rel.	1	Sc. and Rel.	5
		Comp. Politics,	2	Comp. Politics,	2
		Hist. Art,	2	Hist. Art,	2

II. Literature.

Greek (C.)	1	Greek (C.)	1	Greek (C.)	1
Greek (O.)	2	Latin,	2	Latin,	2
French,	2	German,	2	German,	2
English,	2				

III. Science.

Pract. Astr.	1 (2)	Pract. Astr.	1 (2)	Pract. Astr.	1 (2)
Physics,	1 (2)	Physics,	1 (2)	Physics,	1 (2)
Lab. Chem.	1 (2)	Lab. Chem.	1 (2)	Lab. Chem.	1 (2)
Biol. *or* Pal.	1 (2)	Biol. *or* Pal.	1 (2)	Biol. *or* Pal.	1 (2)
Histology,	1 (2)	App. Chem.	1	App. Chem.	1
		Phys. Geog.	2	Phys. Geog.	2
		Math.	3		
Hours elect.	5 or 6		7 or 8		7 or 8
Total hours	14 or 15		14 or 15		12 or 13

1. BIBLE, ORATORY, and ESSAYS are required throughout the four years.
2. Senior Electives marked 1 (2) occupy one hour per week on the Weekly Schedule, but count as two-hour Electives, on account of extra laboratory and observatory work.

FRESHMAN WEEKLY SCHEDULE.—FIRST TERM.

		MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
I.	8½		Math.	English	Homer	Greek W.	Bible
	10	Math.			Math.		
	11		Livy	English		Livy	Horace
	3	Homer	Greek W.				
	4		Elocution	Greek W.	Livy	Math.	
II.	8½		Livy	English	Livy	Math.	Bible
	10		Math.				
	11	Homer		English	Math.	Greek W.	Horace
	3			Greek W.	Homer		
	4	Math.	Greek W.		Elocution	Livy	
III.	8½		Greek W.	Livy	English	English	Bible
	10						
	11	Math.	Math.	Greek W.	Homer	Horace	Livy
	3					Greek W.	
	4	Homer	Livy	Math.	Math.	Elocution	
IV.	8½		Homer	Greek W.	English	English	Bible
	10						
	11	Livy	Greek W.	Livy	Livy	Horace	Math.
	3	Math.		Math.			
	4	Elocution	Math.		Homer	Greek W.	

FRESHMAN WEEKLY SCHEDULE.—SECOND TERM.

		MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
I.	8½		Homer	Algebra	Homer	Greek (W.)	Bible
	10						
	11	Livy	Algebra	Livy	Euclid	Euclid	Horace
	3	Horace					
	4		Greek (W.)	Greek (W.)	Livy	Horace	
II.	8½		Euclid	Livy	Euclid	Algebra	Bible
	10						
	11	Homer	Livy	Algebra	Livy	Greek (W.)	Horace
	3			Greek (W.)	Homer	Horace	
	4	Horace	Greek (W.)				
III.	8½		Algebra	Euclid	Livy	Euclid	Bible
	10						
	11	Horace	Horace	Greek (W.)	Homer	Horace	Greek (W.)
	3			Livy		Greek (W.)	
	4	Homer	Livy		Algebra		
IV.	8½		Livy	Greek (W.)	Algebra	Livy	Bible
	10	Horace					
	11		Horace	Euclid	Greek (W.)	Horace	Euclid
	3	Homer					
	4		Algebra	Livy	Homer	Greek (W.)	

SOPHOMORE WEEKLY SCHEDULE.—FIRST TERM.

		Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
I.	8½		Latin P.	History.	Anat. & Phys.	Greek O.	Bible.
	10	Math.					
	11		French.	Latin P.	Greek O.	History.	French.
	3	Math.	Math.		Greek O.	Greek O.	
	4			Latin P.	Greek O.	Greek O.	
II.	8½		Latin W.	History.	Greek W.	Greek C.	Bible.
	10						
	11	Math.	French.	Latin W.	Anat. & Phys.	History.	French.
	3				Greek W.	Greek C.	
	4	Math.	Math.	Latin W.	Greek W.	Greek C.	

SECOND AND THIRD TERMS.

I.	8½		Latin W.	English.	Zoöl. & Bot.	Greek C.	Bible.
	10	Math.					
	11		French.	Latin W.	Greek W.	English.	French.
	3	Math.	Math.		Greek W.	Greek C.	
	4			Latin W.	Greek W.	Greek C.	
II.	8½		Latin P.	English.	Greek O.	English.	Bible.
	10						
	11	Math.	French.	Latin P.	Zoöl. & Bot.	Greek O.	French.
	3				Greek O.	Greek O.	
	4	Math.	Math.	Latin P.	Greek O.	Greek O.	

JUNIOR WEEKLY SCHEDULE.—FIRST TERM.

	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
8½	PHYSICS	PHYSICS	PSYCHOLOGY.	*Latin*	*Latin*	BIBLE
10				*Anglo-Saxon*	*Anglo-Saxon*	
11	*Greek* (O)	*Math.*	PSYCHOLOGY.	*Mod. Lang.*	*Mod. Lang.*	ENGLISH
3	*Greek* (O)	*Greek* (O)			*Math.*	
4	PHYSICS	PHYSICS	*Hist.* (5 p. m.)	*History*	ENGLISH	

SECOND AND THIRD TERMS.

8½	PHYSICS.	PSYCHOLOGY [1] LOGIC [2]	PSYCHOLOGY [1] LOGIC [2]	*Latin*	*Latin*	BIBLE
10				*Mod. Lang.*	*Phys. Geog.*	
11	*Greek* (W)	*Math.*	PSYCHOLOGY [1] LOGIC [2]	*Phys. Geog.*	*Mod. Lang.*	ENGLISH
3	*Greek* (W)	*Greek* (W)			*Math.*	
4	PHYSICS	PHYSICS	*History*	*History*	ENGLISH	

[1] Until Feb. 1st. [2] From Feb. 1st.

SENIOR WEEKLY SCHEDULE.—FIRST TERM.

	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
8½	JUR. and POL.	ASTRON.	*Physics Biology*	*Int. & Con. Law*	*Mod. Lang.*	BIBLE
10	*Pract. Ast.*				*Greek* (C. & O)	*Palæontology*
11	*Hist. Phil.*	ETHICS	ASTRON.	*English*	*English*	CHEMISTRY
3	*Greek* (O)		*Histol.*	*Mod. Lang.*	*Int. & Con. Law*	
4	JUR. and POL.	ASTRON.	ETHICS (5 P. M.)	*Lab. Chem.*	CHEMISTRY	

SECOND AND THIRD TERMS.

8½	JUR. and POL.	ETHICS [2]	*Physics Biology*	*Comp. Politics*	*Mod. Lang.*	BIBLE
10	*Pract. Astron.*	*Mathematics History of Art*	*Comp. Politics.*	*Metaphysics*	*Greek* (*O*)	*Palæontology*
11	*Hist. Phil.*	SCIENCE&REL.	ASTRONOMY	*Latin*	*Latin*	CHEMISTRY
3	*Hist. of Art*	*Science & Rel.*	*Mathematics*	*Mod. Lang.*	*Mathematics*	
4	ETHICS [1]	*Phys. Geog.*	SCIENCE&REL.	*Lab. Chem.* / *App. Chem.*	CHEMISTRY	

[1] Until Feb. 1st. Followed by *Phys. Geog.* [2] Until Feb. 1st. Followed by JUR. and POL.

EXAMINATIONS, STANDING AND GRADUATION.

EXAMINATIONS.

Regular Examinations.—At the end of each term each class is ordinarily examined in the studies of that term. At the close of the third term the examination in certain subjects embraces not only the work of that term, but the course of the entire year.

Partial Examinations and Written Recitations.—In addition to the regular examinations, partial examinations or written recitations are held from time to time during the term.

Divisional Examinations.—In the Freshman Class, a special examination is held early in the first term, the results of which determine the formation of the class into graded divisions. These are reorganized at the beginning of the second and third terms, according to the results of the last preceding regular examination.

General Regulations.—Examinations are for the most part conducted in writing, but in certain subjects are oral in whole or part. Private examinations are not allowed except in extreme cases, and by special permission of the Faculty. Absence from an examination, except for reasons of absolute necessity, will be regarded as a serious delinquency, and a subsequent examination will not be granted except by a vote of the Faculty.

Regulations in Respect to the Removal of Conditions.

Those who shall appear to the Faculty, on examination, to be deficient in their studies, will be dealt with according to the nature and extent of the deficiency. Any member of either of the three lower classes who shall fail to pass the examinations at the end of the first or second term in more than two depart-

ments, shall be dropped from his class and shall be required to enter a lower class or to withdraw from College. If the failure be in not more than two departments, the student may be allowed a second trial at the beginning of the next term; if he fail in this second examination, he shall employ a tutor approved by the Faculty, and be allowed four weeks for further preparation; but if he still fails to pass, he shall be required to enter a lower class or withdraw from College. The same rules shall apply to the examinations at the close of the third term, except that in the case of failure in not more than two departments the student shall be required to pass a satisfactory examination at the beginning of the next Academic year, and will not be allowed additional time for preparation, nor a third trial.

In the Freshman Class failure with either instructor in Greek, in Latin, or in Mathematics is reckoned as a separate failure in the application of the above rules.

The Senior Class will be subject to the same regulations as the three lower classes so far as regards the examinations at the close of the *first* term, and the removal of any conditions then incurred.

In the application of these regulations, special cases, arising from illness or other causes, will be duly considered.

On the second day of each term, Thursday, at 10 o'clock A. M., all delinquent or unexamined students are required to meet in the Old Chapel to make arrangement with their instructors for examination in the subjects in which they are deficient. This does not apply to entering students. In the first term this examination is to take place immediately at the beginning of the term; in the second and third terms two weeks are allowed for it. Any student not present as thus directed, or not prepared for examination at the time appointed, will be debarred from another opportunity, except by special vote of the Faculty.

STANDING.

The results of the term examinations are combined with those of the recitations to decide the relative standing or rank of the student. The maximum mark in each study is one hun-

dred; the minimum or passing mark is fifty. Students falling below the passing mark in any study are conditioned, and in order to continue with the class must be re-examined.

Each instructor after computing from recitations and examinations the marks of his classes determines each student's rank by assigning him to one of six Groups into which the class is divided. These Groups are constituted and numbered in order of merit,—those students whose marks indicate the highest attainments being assigned to the First Group; the next highest to the Second Group, and so on through the six Groups. The First Group is to contain not less than one-thirtieth, nor more than one-tenth of the class; the Second, Third, Fourth, and Fifth Groups, each not more than one-fifth,—and the Sixth comprises the remainder of the class, except those not fully examined.

The General Rank of a student is determined by combining his Group-numbers in the several studies in proportion to the allotted schedule time of each. Those students whose averages are highest, and above an established limit, are assigned to the First General Group; those next highest to the Second General Group; and so on, through the Six General Groups.

The First and Second General Groups for the year of the Junior, Sophomore and Freshman classes constitute the Honor Groups of these classes and are published in the Catalogue of the following year,—the names included in each Group being printed in alphabetical order.

In determining a student's standing, account is taken of attendance and conduct as well as scholarship, according to the published rules of the Faculty.

A report of the standing of each student is made to his parent or guardian by the Registrar of the College at the close of the first term and at the close of the year. The latter report gives also the result for the whole year.

GRADUATION.

Bachelor's Degree.

Students who pass their final examinations are ordinarily recommended by the Faculty for the Degree of Bachelor of

Arts, and if the recommendation is approved by the Trustees, they receive diplomas signed by the President and the Clerk of the Board of Trustees.

No student will be recommended to the Trustees for a degree who fails to pass in his examination at the close of the last term of the Senior year. A student who fails to pass in his final examination in any department will forfeit the title to a degree, and it can only be restored by express vote of the Faculty upon sufficient reasons given, and in accordance with the following regulations:

(1.) Any member of the Senior class failing at the final examination in but *one* of his studies may, by vote of the Faculty, be allowed a re-examination, and if successful in passing this may be recommended to receive his degree with his class.

(2.) Any member of the Senior Class failing to pass the final examination in *two* of his studies may, by vote of the Faculty, be allowed a re-examination, and if successful in this may be recommended for a degree *at some time in the next Academic year.*

Final Rank and Graduation Honors.

The final rank of members of the graduating class is computed by combining the averages for the several years of the course, and the Faculty then determines the limits of the six General Groups of the graduating class, and also what portion of the class shall be printed as the Honor List,—the names of the members of each group of the Honor List being printed in alphabetical order.

The First and Second General Groups thus determined are the Honor Groups of the graduating class, and are designated *magna cum laude* and *cum laude* respectively.

The higher distinction of *insigni cum laude* and the highest of *summa cum laude* are reserved for very unusual excellence.

Commencement Appointments.

Commencement orations, indicative of general or special excellence, are awarded by the Faculty to such students as are deemed worthy of distinction. The student whose individual

rank is highest is ordinarily awarded the Latin Salutatory by vote of the Faculty. In like manner the student whose individual rank is the next highest receives the English Salutatory. The Valedictory is awarded with special regard to the qualifications of the student as a Valedictorian, as well as on the ground of scholarship. Orations and Theses designated as Philosophical, Classical, Mathematical, Physical, Metaphysical, Ethical, Historical, Literary, Belles Lettres, French, and German, are awarded to students eminent in the corresponding departments.

In the award of all degrees and honors, regard is had to the conduct of the student during his course, and any student who has incurred serious discipline may be debarred from the rank to which otherwise his scholarship would have entitled him.

THE

JOHN C. GREEN SCHOOL OF SCIENCE.

FOUNDATION AND ORGANIZATION.

This institution is a department of the College of New Jersey, founded in 1873 upon an endowment by Mr. John C. Green.

Its design is to furnish more extended and special instruction in the Natural Sciences, providing a course in General Science for undergraduate students and also various graduate courses. The course in Civil Engineering was added in 1875, by further endowment from the residuary legatees of Mr. Green, and subsequently the elective courses in certain branches of the Natural Sciences were established.

The undergraduate courses offer, according to the choice of the student, efficient education in the Natural Sciences in general, or a thorough training in the study of Civil Engineering and in various other branches of Science, pure and applied. At the same time a liberal education in certain Academic studies is secured to all candidates for a degree.

Graduate courses of study for the degrees of Master of Science and Doctor of Science are provided; and also special courses which, under certain conditions, may be taken by students who are not candidates for any degree.

Instruction is given by lectures and recitations,—by practice in the laboratories, drawing rooms, museums, and field,—and excursions are made to different points of interest.

Before receiving his degree every student must present to the Faculty an acceptable thesis on some scientific subject, the nature of which will depend upon the course he has pursued.

ADMISSION.

ENTRANCE EXAMINATIONS.

All entering students on their arrival must report at the President's house and register. The first examination for admission will begin in Princeton on Thursday, June 18th, at 11 A. M., and will continue through the afternoon of Friday. The second will begin on Tuesday, September 15th, at 11 A. M., and continue through the afternoon of Wednesday. *Attendance is required at the beginning of the examination.*

Simultaneously with the June entrance examinations in Princeton, examinations are held in the following cities, viz.: Pittsburgh, Cincinnati, Louisville, Chicago, St. Louis, Omaha, and San Francisco; and elsewhere, if necessary. The precise places in which the examinations are to be held can be learned by application to the President. Due notice will be published in leading papers of these cities for several weeks in advance.

Examinations at other times and places than those specified are very inconvenient and often impracticable, and applicants for admission at other than the regular days are required to pay $10 into the treasury.

Candidates for admission to the Freshman Class must be at least sixteen years of age. They will be examined in the following books and subjects:

ENGLISH: Grammar; Whitney, or Reed and Kellog (Higher Lessons): Modern Geography; Guyot's Grammar-School Geography: U. S. History, Scott's or Anderson's Grammar-School History: Essay; the writing of a short essay is required as a part of the examination in English; the theme for 1885 will be Fenimore Cooper: his life and any one of his novels. The attention of Preparatory Schools is called to the need of a more thorough study of Elementary English. MATHEMATICS: Arithmetic entire, including the Metric System, a prac-

tical knowledge of which is indispensable; Algebra, through Quadratic Equations of one and two unknown quantities, including Evolution, Radicals, Theory of Exponents; Geometry, Plane Geometry entire (five books of Chauvenet's Geometry or their equivalent). LATIN: *Grammar*, with special attention to Parsing, and the retranslation from English into Latin of simple sentences from the First Book of Cæsar; *Translation*, Cæsar (five books of the Gallic War), or equivalents from other Latin authors.

It is recommended that all candidates should receive instruction in Free-hand Drawing before their entrance.

NOTE.—Candidates for the degree of Bachelor of Science entering in June, 1886, and thereafter will be examined (in addition to the subjects above enumerated) in FRENCH, including the *Elements of Grammar* and the *Translation* of fifty pages of simple French Prose; and in the *Elements of Physical Geography*, as contained in Guyot's Grammar-School Geography. The same subjects will be required of candidates for the degree of Civil Engineer, but no examination in Latin of any kind will be required of candidates for the degree of Civil Engineer entering in 1886 or later.

Candidates for the degree of Bachelor of Science entering in June, 1887, and thereafter will further be required to pass in the *Translation of four orations of Cicero against Catiline.*

OTHER REQUIREMENTS.

Candidates for admission to an advanced class will be examined in the studies previously pursued by the class they propose to enter.

All candidates for admission must bring satisfactory testimonials of moral character, and if the candidate has been a member of another college, university, or similar institution, he must produce a certificate from its President or Faculty that he is free from censure in the same.

No candidate is admitted without an examination and a vote of the Faculty.

Immediately after the opening of the College the entering students meet according to announcement for the registration of their names and subscription to the following pledge, required by the Board of Trustees:

We, the undersigned, do individually for ourselves promise, without any mental reservation, that we will have no connection whatever with any secret society, nor be present at the meetings of any secret society in this or any other College so long as we are members of the College of New Jersey; it being understood that this promise has no reference to the American Whig and Cliosophic Societies. We also declare that we regard ourselves bound to keep this promise, and on no account whatever to violate it.

UNDERGRADUATE COURSES.

Undergraduate courses are provided for the Degrees of Bachelor of Science, and of Civil Engineer.

Candidates for the degree of Bachelor of Science pursue the course in *General Science* until the end of the first term of the Junior year, after which they may continue in that course, or choose one of the following four *Elective Courses: Chemistry and Mineralogy; Biology and Chemistry; Biology and Geology; Mathematics and Mechanics.*

In the Senior year students taking the course in General Science, or the elective course in Mathematics and Mechanics, may pursue a *select course in Physics*, or *practical Astronomy.*

The student must announce his election before the end of the first term of the Junior year. He cannot afterwards change his course without the permission of the Faculty.

The course in *Civil Engineering* diverges from that in General Science at the very beginning of the Freshman year.

Special Students.—For persons who may desire to devote especial attention to any of the scientific studies of the School, arrangements can be made with the Professors of those branches, if the Professor in charge shall, after due investigation, decide that the applicants can pursue such studies with advantage. Every facility will be offered for their advancement in the studies selected, with the personal supervision of the Professor and full access to the collections, etc.; but it must be distinctly understood that this opportunity is intended only for those who desire to obtain proficiency in special branches, and not for students who have failed to keep up with the regular classes. Special students will be required to give evidence of satisfactory progress in their studies. To those passing successful examinations in the branches selected, certificates of proficiency will be given. The branches open to special students include: Geology; Mineralogy; Biology; Physics; Practical Astronomy; Analytical and Applied Chemistry; Assaying; Topography.

COURSES FOR THE DEGREE OF BACHELOR OF SCIENCE.

COURSE IN GENERAL SCIENCE.

This course is especially intended to furnish instruction in the Natural Sciences in general, and the required studies of the course are indicated in the synopsis on pp. 98-100. After the beginning of the second term of the Junior year the student pursues, under the direction of the Faculty, elective studies in various branches of science, to occupy the hours not devoted to the required studies.

STATEMENT OF STUDIES.

Modern Languages.

PROFESSOR HUSS.

Instruction in Modern Languages comprises German and French as a required study throughout the entire course; the number of exercises being given in the synopsis, pp. 98-100.

In the Freshman year the student begins and completes the etymological part of grammar, both in German and French. The instruction is, at the very outset, conducted with a view to familiarizing the student not only with reading and writing, but also with speaking the foreign idiom; for which latter purpose conversational exercises are constantly resorted to and especial attention is given to pronunciation.

In the Sophomore year the instruction bears on syntax, with oral and written exercises in more difficult French and German prose, particular attention being given to the intricacies of the German period.

The Junior year and the first term of the Senior year are devoted to a critical study of, and lectures on the master-pieces of German and French literature, and to the writing of compositions in either language.

Mathematics.

PROFESSOR ROCKWOOD AND MR. DANIELS.

The Mathematical course, which is the same for all students of the School of Science, is intended to be so framed as to sup-

ply the necessary foundation in knowledge and training for the later studies of Physics and Mechanics, and especially finds its natural continuation in the applied mathematics of the course in Civil Engineering. The fact that the student's mathematical knowledge is thus to be *used* in other departments is carefully kept in view, not only in selecting the subjects to be studied, but in arranging their order and the relative time to be devoted to each, so that he may be properly prepared for the work before him. In this connection also especial mention may be made of the constant black-board practice, which is a prominent feature of the instruction, and gives the student a practical as well as a theoretical familiarity with the processes, preparing him for their ready use afterward in the special investigations of his later studies.

The student is required, at the entrance examination, to be acquainted with Arithmetic, including the Metric System; Algebra through Quadratic Equations, including Radicals and the Theory of Exponents, and with the principles of Plane Geometry as developed in the first five books of Chauvenet's Geometry.

During the whole of the first year the student devotes five hours a week to Mathematics. In the first term he finishes the study of Algebra (Wells), discussing the various forms of Series, the subject of Logarithms, and the Theory of Equations.

In the second term Solid Geometry and Spherical Geometry are studied, under Mr. Daniels, the text-book being Chauvenet's Treatise, and the subject being illustrated by a numerous and valuable collection of models, mostly from original designs. With the Geometry is combined a thorough course in Mensuration, and an introduction to the elements of Modern Geometry. A part of the third term is devoted to Plane Trigonometry, in which the student becomes accustomed to the practical use of Logarithms, and in like manner a part of the first term of the Sophomore year is given to Spherical Trigonometry and its applications. The second and third terms of the Sophomore year are devoted to the study of Analytical Geometry (Loomis), both of the Plane and of Space, with special reference to the Conic Sections. In the first term of the Junior year the Differ-

ential and Integral Calculus are studied, with five exercises a week. Throughout the whole course, the blackboard drill is combined with abundant oral explanation and occasional formal lectures.

The Calculus ends the course in the Pure Mathematics required of all students. They pass then to the applications of their work in the special departments of Engineering, Physics, Astronomy, etc. Provision is, however, made for the further special study of the subject by the elective course in Mathematics and Mechanics.

Graphics.

PROFESSOR WILLSON.

INDUSTRIAL DRAWING.—This study occupies seventy hours during the first term of the Freshman year, and embraces instruction in the use of drafting instruments and materials in the various operations of Industrial Science Drawing: such as tinting and shading, both with pen and brush; lettering; the representation of metals, wood, rocks, earth, tiles and other materials of architectural and engineering construction; architectural drawings to scale, from measurements; solution of problems relating to compound curves suitable for arch "face-lines," etc. Text book: Warren's "Drafting Instruments and Operations."

PLANE PROBLEMS AND ELEMENTS OF DESCRIPTIVE GEOMETRY.—Instruction in these subjects occupies 120 hours during the second term of the Freshman year, and embraces:

(a). The construction of the cycloid and other trochoidal curves, of the spirals and of the paths traced by points in link motions.

(b). The orthographic projection (in the first angle) of points, lines, surfaces and solids, with problems of sections, interpenetrations and developments relating to the latter, including the five regular solids.

(c). Axonometric (including Isometric) projections, with drawings from models, to scale, from measurements.

(d). Elementary problems of shades and shadows.

(e). Elementary problems of the point, line and plane in the four angles. Text book: Angel's Practical Plane Geometry and Projection.

DESCRIPTIVE GEOMETRY.—This embraces a course of 48 hours, in the first term of the Sophomore year, on developable, double-curved and warped surfaces, spherical projections and trihedrals. Text books: Warren's Descriptive Geometry; Angel's Practical Plane Geometry and Projection.

SHADES, SHADOWS AND PERSPECTIVE; a course occupying 30 hours in the second term of the Sophomore year. Text book: Warren's Descriptive Geometry.

FREE-HAND DRAWING; a course occupying 64 hours in the Junior year. Drawings from photographic and other models, including plaster casts, architectural constructions, specimens in the museum collections, etc., preparatory especially to advanced work in the study of Biology.

ELECTIVE COURSES.—Stereotomy (see course in Civil Engineering), may be elected by any student taking the elective course in Mathematics and Mechanics; and both Stereotomy and Machine Drawing (see course in Civil Engineering), may, in the Junior and Senior years, be elected by students taking the course in General Science, when no interference with other studies is occasioned.

DRAFTING ROOM AND MODELS.—The recitation and drafting room of the department of Graphics is well lighted and furnished with model cases and with desks for the accommodation of ninety-two students. The drawing courses in Descriptive Geometry, Perspective, Shades and Shadows, Architectural Constructions (including Stone-cutting), Kinematics and Machinery, are illustrated by a large collection of models, which includes a number of duplicates of the Olivier ruled-surface models, two hundred from the Messrs. Schröder, of Darmstadt, complete sets of the mathematical models designed by Professors Brill and Björling, a number of the "Muret" plaster models and several warped surface models from designs by the instructor.

General Chemistry.

PROFESSOR SCHANCK.

The instruction in this study occupies two hours a week during the Sophomore year, being the same as that in the required course in General Chemistry, of the Academic classes. Students pursuing the course in General Science also attend Professor Schanck's elective course in Applied Chemistry, during the Senior year.

Analytical Chemistry and Mineralogy.

PROFESSOR CORNWALL; DR. MCCAY, ASSISTANT.

MINERALOGY.—The elements of Crystallography are taught by a course of lectures in the second and third terms of the Freshman year. Determinative Mineralogy, with the blowpipe, is taught during the whole of the first term of the Sophomore year, in a course of four exercises a week, (two hours each). In the Senior year a course of lectures on Descriptive Mineralogy, with practice in the determination of minerals by their physical characteristics, together with the optical study of mineral and rocks, may be elected by the students in the course in General Science.

ANALYTICAL CHEMISTRY.—During the second and third terms of the Sophomore year, the students attend lectures, with recitations, and also work in the laboratory, pursuing the study of Qualitative Chemical Analysis, with Fresenius's Manual as a guide. Four exercises a week (of two hours each) are given to the study of the detection of bases, together with instruction in the tests for the common acids, inorganic and organic. During the Junior and Senior years instruction in Quantitative Chemical Analysis may be taken as an elective.

Geology.

PROFESSOR SCOTT.

This course will occupy two hours a week during the second and third terms of the Junior year, and will be more technical in character than the geological course of the Academic

Department, though covering nearly the same ground. Dynamical, Structural and Historical Geology will be treated, but special attention will be given to Structural Geology, including Petrography, with reference to its technical and economical bearings.

The text-book employed will be Geikie's Manual of Geology.

Botany.

PROFESSOR MACLOSKIE.

During the Freshman year Botany is a required study. There are five exercises a week (of two hours each), for fourteen weeks. The work of the class is exclusively practical, and includes the examination of plants as to their morphology, histology, modes of development, aud physiology. Students are taught to use their hands and eyes, to avail themselves of microscopical appliances, to master the characters of the larger orders of plants, and are exercised in phytography by describing and drawing what they see. The text books and manuals are used for reference, but each student is required to prepare his own text-book by noting down the results of his own examination of typical plants. Botanical excursions are made in the spring season to the surrounding districts, and an original thesis on some botanical subject is required of each student. (Books recommended: Macloskie's Elementary Botany; Gray's Manual of Botany; Bessey's Briefer Course Botany. Books of reference: Sachs' Text Book of Botany; Eichler's Blüthendiagramme; H. Müller's Fertilization of Flowers; Le Maout and Decaisne's Botany; Bentham and Hooker's Genera Plantarum; De Candolle's Prodromus. Also the monographs on special groups of Flowering and Flowerless Plants.)

Biology.

PROFESSORS MACLOSKIE, LIBBEY AND OSBORN.

During the Sophomore year all candidates for the degree of Bachelor of Science have an elementary course in Zoölogy, consisting of fifty-two exercises, during the second and third terms.

The studies of the second term, under Professors Macloskie and Osborn, consist of lectures and practical work upon the Invertebrates and Vertebrates. In the third term Professor Libbey gives a course in Histology and use of the microscope.

These required courses are introductory to the Elective courses in Biology and Chemistry, and Biology and Geology of the Junior and Senior years.

Studies Pursued in Common with the Academic Classes.

The following studies are pursued either together with the Academic classes, or essentially as stated under the corresponding titles in the Academic course, and under the same instructors:

Psychology or Logic, according to the election of the student; Political Economy; English Literature, the Essays and Orations required from the Senior Class in the Academic course being replaced in the Scientific course by the preparation and reading of Theses on Scientific subjects; Rhetoric and English Language; Oratory; Physics; Astronomy; Human Physiology and Anatomy.

SYNOPSIS OF COURSE.

The required studies of the course in General Science are indicated in the following synopsis, the bracketed figures denoting the number of exercises in each subject:

FRESHMAN YEAR.

First Term.

MATHEMATICS: Algebra completed (Wells'); [65]. ENGLISH: Principles of Discourse, Part I (Hunt); Essays; [26]. MODERN LANGUAGES: German; Huss' System of Oral Instruction. French; Otto's Grammar, with oral and written exercises; [65]. BOTANY; Flowering Plants; Vegetable Histology (Macloskie's Botany); [30]. DRAWING: Elements of Industrial Drawing; [35]. ORATORY: Lectures and Drill in Elocution.

Second and Third Terms.

MATHEMATICS: Solid and Spherical Geometry (Chauvenet); Mensuration; Plane Trigonometry; [95]. MODERN LANGUAGES: German; Huss' System of Oral Instruction, completed. French; Otto's Grammar, completed; [95]. BOTANY: Flowerless Plants; Herborizing (Macloskie's Botany: Bessey's Botany, Briefer Course; Gray's Manual of Botany); [35]. DRAWING: Projections and Descriptive Geometry; [60]. MINERALOGY: Crystallography; [19].

SOPHOMORE YEAR.

First Term.

DESCRIPTIVE GEOMETRY; [24]. GENERAL CHEMISTRY: Inorganic; [26]. MINERALOGY: Determinative; [52]. HUMAN ANATOMY AND PHYSIOLOGY; [13]. GERMAN: Syntax. FRENCH: Syntax; also oral and written exercises in either language; [Modern Languages, 52]. MATHEMATICS: Spherical Trigonometry and its applications; [28]. ORATORY: Criticism, Declamations, Readings.

Second and Third Terms.

MATHEMATICS: Analytical Geometry (Loomis); Surveying; [76]. SHADES, SHADOWS AND PERSPECTIVE (Warren); [15]. GENERAL CHEMISTRY: Inorganic; [38]. ANALYTICAL CHEMISTRY: Qualitative Analysis; [76]. ZOÖLOGY: [32]. HISTOLOGY; [20]. ENGLISH: Study of Words (Trench); Essays; [38]. GERMAN: Syntax completed. FRENCH: Syntax completed. Oral and written exercises continued. [Modern Languages, 76].

JUNIOR YEAR.

First Term.

MATHEMATICS: Differential and Integral Calculus; [65]. PHYSICS; Elementary Mechanics; Properties of Bodies; Acoustics; [52]. ZOÖLOGY: Vertebrates (Packard's Zoölogy; Balfour's Comparative Embryology); [13]. ENGLISH LITERATURE: Chaucer; Lectures; [26]. MODERN LANGUAGES:—German: Lessing.—French: Racine. [39]. PSYCHOLOGY; [26]; DRAW-

ING: Free-hand; [13]. ORATORY: Oratorical Analysis; Composition and Delivery.

Second and Third Terms.

PHYSICS: Heat; Light; Electricity and Magnetism; [57]. ANALYTICAL CHEMISTRY: Quantitative Analysis.* ZOÖLOGY: Vertebrates; [19]. ENGLISH LITERATURE: Lectures; [38]. MODERN LANGUAGES:—German: Schiller; Goethe.—French: Molière; Corneille; [57]. LOGIC, [48]; or PSYCHOLOGY, [9]. GEOLOGY; [38]. DRAWING: Free-hand; [19].

SENIOR YEAR.

First Term.

ASTRONOMY: General; [39]. GENERAL CHEMISTRY: Applied; [13]. ANALYTICAL CHEMISTRY: Quantitative Analysis.* BIOLOGY; [13]. MODERN LANGUAGES; German: Goethe. French: Victor Hugo. Reading: French and German. Compositions in either language. Reading Scientific Prose at sight; [39].

Second and Third Terms.

ASTRONOMY: General; [18]. GENERAL CHEMISTRY; Applied; [18]. ANALYTICAL CHEMISTRY: Quantitative Analysis.* BIOLOGY; [13]. POLITICAL ECONOMY; [36]. ORATORY: Reading of Essays on scientific subjects.

COURSE IN CHEMISTRY AND MINERALOGY.

This course, which is designed to afford thorough instruction in Analytical and Technical Chemistry, is one of the elective courses; and students electing it enter upon the special studies of the course at the beginning of the second term of their Junior year. They pursue also the following required studies of the Junior and Senior years in the course in General Science:—Modern Languages; Political Economy; Psychology

*Varies according to other Elective Studies taken.

or Logic; English Literature; Physics; Astronomy; Geology; Zoölogy; Drawing; Oratory.

The remainder of the time during these two years is devoted to the following special studies of this course:—

QUALITATIVE ANALYSIS.—This subject, previously pursued so far as stated on page 96, is continued, so as to include the detection of inorganic and organic acids, as well as bases, in complex substances.

QUANTITATIVE ANALYSIS.—A full course, including the analysis of chemical and metallurgical products, ores, fertilizers, sugar, water, etc. Volumetric methods are freely used whenever they are appropriate.

ASSAYING.—Furnace assay of Ores; Bullion assays.

BLOWPIPE ANALYSIS.—Qualitative (required;) Quantitative (optional).

TECHNICAL CHEMISTRY and APPLICATIONS OF CHEMISTRY to Medicine and Hygiene, including Toxicology, Analysis of Potable Waters, Adulterations of Food, Disinfectants. Lectures and recitations.

MINERALOGY.—Descriptive and Determinative (the latter chiefly based upon the physical characters of the minerals).

LITHOLOGY.—Descriptive and Determinative, with microscopical examination of typical rocks.

In all of the above subjects the instruction embraces lectures by Professor Cornwall, with recitations upon the lectures and upon portions of the manuals mentioned below, and also laboratory practice (except in Technical Chemistry) under the Professor and Dr. McCay. All chemical reactions are fully explained by the use of chemical formulas, and the student must show that he understands the theory of all the operations he performs or describes.

The graduation Thesis presented by the student must embody the result of the student's own work in the Laboratory, whether it be experimental or analytical.

Text-books.—Fresenius' Manuals of Qualitative and Quantitative Chemical Analysis; Ricketts' Notes on Assaying; Cornwall's Blowpipe Analysis. Reference is frequently made to other works and to scientific periodicals.

COURSE IN BIOLOGY AND CHEMISTRY.

This course is recommended to students who intend afterwards to pursue the study of medicine. Students electing it remain candidates for the degree of Bachelor of Science. The special studies of the course begin with the second term of the Junior year, half of the time devoted to such studies being allotted to Biology and half to Chemistry. For the present year the division is made as follows :

I. BIOLOGY.—In this branch Prof. Macloskie gives a series of exercises on the anatomy of type forms of Invertebrate Animals, on Comparative Physiology, and on the Morphology and Embryology of Plants. The text-books recommended are : Packard's Zoölogy, Foster's Physiology, Brooks' Handbook of Invertebrate Zoölogy, Huxley on the Cray-fish, Balfour's Comparative Embryology, Leidy's Freshwater Rhizopods, Macloskie's Elementary Botany, Bessey's Botany, Sachs's Botany.

Professor Osborn conducts two exercises a week during the second and third terms of the Junior year, and two a week during the second and third terms of the Senior year. This portion of the work is intended as an introduction to the study of Human Anatomy and embraces a thorough course in dissection and study of the skeleton of the Cat and Rabbit, employing the text-books of Parker, Mivart, etc. There is also a course of lectures upon Embryology in the third term of each year, with practical work upon the development of the chick and frog.

II. CHEMISTRY.—This part of the course will embrace classroom exercises under Prof. Cornwall and laboratory work under his supervision, with the aid of Dr. McCay. After learning how to make quantitative analyses of a number of simple and complex inorganic substances, by the use of gravimetric and volumetric methods, the students will study the properties of the various typical organic compounds, such as alcohols, carbohydrates, acids, etc., as well as of fats, urea, milk and other bodies of interest to the student of physiological chemistry, and will be trained in the methods of analyzing and estimating the same, reference being made to appropriate manuals and current

scientific literature. Lectures will also be given upon the Applications of Chemistry to Medicine and Hygiene, including Toxicology, Analysis of Potable Water, Adulterations of Food, Disinfectants and similar subjects.

COURSE IN BIOLOGY AND GEOLOGY.

The special objects of this course are to qualify students who elect it to become original investigators or teachers of the special branches of Science included in it.

Until the close of the first term of Junior year the studies are not specialized, but are the same as in the course in General Science. The special studies in Biology and Geology begin with the second term of the Junior year, and embrace the following subjects:

I. ZOÖLOGY, during Junior and Senior years, including Comparative Anatomy, Osteology, and Embryology; 149 exercises. Professor Macloskie.

II. COMPARATIVE ANATOMY of the Vertebrates, during Junior and Senior years; 94 exercises. Professor Osborn.

III. HISTOLOGY, during second and third terms of Sophomore year; 20 exercises. Professor Libbey.

IV. PALÆONTOLOGY; Professor Scott.

Instruction is also given in the following branches of Natural History:

Physiology, during Senior year; 35 lectures. Professor Macloskie.

Geology, during Junior year; 38 lectures. Professor Scott.

Physical Geography, during Junior year; 40 lectures and recitations. Professor Libbey.

Botany (optional). Professor Macloskie.

1. ZOÖLOGY.

In this branch, which occupies the second and third terms of Junior year, and continues during the whole of Senior year (two or three recitations weekly), Professor Macloskie gives a series of practical exercises with recitations on the different groups of Invertebrated Animals, using as type-forms for study

Amœba, Hydra, Planaria, the Earth-worm, Cray-fish, Cockroach, Mussel and Ascidium ; Comparative Physiology, using Huxley's and Foster's text-book, and with the actual examination of the structure and functions of the organs. Other text-books used in this coure are Huxley's Anatomy of Invertebrated Animals, Brook's Hand-book of Invertebrate Zoölogy, Huxley on the Crayfish, Packard's Zoölogy, Mivart on the Cat, Flower's Osteology of the Mammalia, Parker on the Shoulder Girdle, Leidy's Freshwater Rhizopods of North America, Balfour's Comparative Embryology.

II. The Comparative Anatomy of the Vertebrates.

(1) The Birds ; their skeleton, muscles, brain, digestive and vascular systems, as modified for their peculiar habits of feeding and flight. This course is given in Sophomore year. (2) The Mammals ; their Anatomy studied by inter-comparison and by the light thrown upon it by the Anatomy of Reptiles, Fishes and Birds. This course includes the Elementary Embryology of the Chick and Frog, also the development of the Skull. The course in Embryology follows the early chapters of Foster and Balfour's work, and chick embryos are obtained by means of an incubator. The works of Huxley, Balfour, and Parker are employed. The principal feature of the course is the laboratory work and the constant practice in drawing from the specimens and dissections.

III. Histology.

This subject embraces a study of the normal tissues, and covers as wide a range as possible in the vertebrate kingdom. Special attention is directed to the methods of microscopical work, both in the management of the instrument and in the processes of injection, preserving, staining, and mounting specimens, the student being required to do these operations for himself. The laboratory is open at all hours for private investigation on the part of the student, and material is provided.

The regular exercises are held from 2 to 5 p. m. on Wednesday of each week during the second and third terms of Sophomore year. A fee of $10 is charged to cover the expense of mounting material, slides, cover glasses, etc.

IV. Palæontology.

This study extends through the Senior year for those students who elect Biology. It includes practical work in the Museum, the collections of which offer every facility for the thorough pursuit of this subject. Sufficient undescribed material is in the Museum to offer those students who desire to take a Palæontological subject for their graduation Thesis, abundant opportunity to do so.

COURSE IN MATHEMATICS AND MECHANICS.

The required studies in this elective course are the same as in the course in General Science, but after the beginning of the second term of the Junior year, students electing the course in Mathematics and Mechanics will pursue such of the studies named below, and in such order, as may be determined from time to time by the Professor of Mathematics in the School of Science, the Professor of Mechanics, and the Professor of Physics.

Rational Mechanics; Mathematical Theory of Fluid Motions; Mathematical Theory of Strength of Materials; Thermodynamics; Higher Analytical Geometry and Calculus; Quaternions; Method of Least Squares; Graphics.

COURSE IN CIVIL ENGINEERING.

This course is designed to fit its graduates for entering the profession of Civil Engineering. It also provides for the instruction, in any of its specialties, of the graduates of this College, and others who may be found suitably prepared. An important feature of this course is the introduction of Field Work and other technical studies into its earlier years; but this divergence from the course in General Science is not sufficient, during the first year, to make it difficult for the student to change, if desirable, from one course to the other before the opening of the Sophomore year.

The requirements for entrance to the Freshman Class are the same as in the course for the Degree of Bachelor of Science. The regular course of study occupies four years, and the degree conferred on graduates is that of Civil Engineer, (C. E.)

STATEMENT OF STUDIES.

Studies Pursued in Common with the Classes in General Science.

The instruction in these studies is the same as stated on p. 98, *et. seq.*, and under the same instructors. Modern Languages (of the Freshman and Sophomore years); English Literature; Rhetoric; Oratory; Psychology or Logic (according to the election of the student); Political Economy; Mathematics; Descriptive Geometry; Shades, Shadows and Perspective; Industrial Drawing; General Astronomy; General Chemistry; Mineralogy (of the Freshman and Sophomore years).

Technical Studies.

The instruction in these studies is given by Professors McMillan, Brackett, Young, Rockwood, Libbey, Willson; Mr. Smith.

In many of the technical studies of the course in Civil Engineering the instruction presupposes a thorough preliminary training of the student in *Mathematics*. A thorough mastery of the ordinary divisions of this science is, therefore, indispensable to the successful study of such subjects as Mechanics, Physics, etc., which follow it.

Great stress is also laid in this Course on the study of *Graphics* as a Science, both in its general development and in its application to the practice of designers and builders.

RATIONAL AND APPLIED MECHANICS and the THEORY OF MACHINES.—The instruction in these subjects covers a wide field of study, beginning with the general discussion of Motions and the action of Forces, and ending with the deduction of practical formulæ relating to the strength or stability of different structures; the power, efficiency and strength of hydraulic,

steam, and air motors and to the various problems which arise in the practice of Hydraulic Engineers.

In dealing with these subjects, rigidly mathematical treatment is generally used, and higher analysis is freely employed wherever it is expedient; yet proper weight is given to methods of graphic analysis, and the student's attention is especially directed to those problems in which they can be employed with marked advantage.

EXPERIMENTAL MECHANICS.—The instruction in this study consists mainly of laboratory work. Its purpose is to familiarize the student with the physical properties of building materials; to teach him by actual experiment how to conduct tests and to deduce therefrom coefficients of strength, elasticity, etc.; how to determine coefficients of hydraulic flow and resistance; and how to gauge, by the aid of indicators and dynamometers the power of steam and other motors. Under this head come also problems in the erection of structures.

AN ENGINEERING LABORATORY has been provided for this work. It contains the following experimental apparatus:—A torsional testing machine; a wire and cement tester; various kinds of current meters and water gauges; a Worthington water meter; a contrivance for determining the hydraulic slopes within earthen retaining banks; a flushing tank; a reaction wheel and other minor pieces of hydraulic apparatus; a double acting steam pump; a locomotive link and valve motion, and a ten-horse power compound engine with condenser, indicators, gauges, and a "Prony" brake.

The illustrative apparatus of the Laboratory comprises rail sections and joints; specimens of the products of iron and steel mills and of other building materials; a Sturtevant blower; models of water-wheels, of trestles, and of the details of iron bridge and roof joints, of vaults and arches, and a 25-foot iron model of a single track railroad bridge, with a complete outfit of false-works and other appliances for its erection, designed especially for this College.

THE PLANNING AND CONSTRUCTION OF ENGINEERING WORKS.—This is treated in a course of lectures following the

study of Applied and Experimental Mechanics. The topics which receive special attention are given in the list of subjects under the heading *Constructions*, on page 112.

Great stress is laid on the application of correct principles and formulæ; on the careful inspection, manipulation and preservation of materials, and on the economic features of various designs and the modes of executing them.

A large collection of lantern slides has been provided for illustrating this course. Among the more important photographic studies are a large number of views in detail of the East River Suspension Bridge at different stages of its progress.

PRACTICAL PHYSICS.—In view of the great importance of the problems in terrestrial magnetism in Geodetic surveys, and also in view of the present and increasing demands upon engineers, arising from the application of electricity as a means of illumination and of transmitting energy, provision has been made for the suitable instruction of the student in these subjects, and all candidates for the degree are required to attain a high standard in them.

GEODESY.—The study of *Engineering Field Work* is provided for in the different subdivisions of the course in Geodesy. The structure, adjustment and use of each instrument is made the subject of special attention, and no student is allowed to participate in any extended field operation until he has acquired a certain dexterity in handling the instruments used therein. The instruction in field work, beginning with the measurement of lines and angles, extends through different kinds of surveys in the order of their complexity, and ends with problems in Higher Geodesy.

A special feature of the course is the stress laid on the collection and verification of field notes by each student, and on their proper use in the preparation of different kinds of plans, maps and charts of surveys. No error is allowed, in field work or in platting, which is not within the limits observed in current practice.

Under this head is given special instruction in *Hypsometry*; the subject being presented by means of lectures and numerous demonstrations in the lecture room and the field.

A very full collection of instruments has been provided for the course in Geodesy. It represents the work of twelve different firms of high repute, great care having been used to avoid the duplication of instruments by the same maker.

The collection consists of a twelve inch Geodesic Transit, a large Plane-Table with telescopic Alidade and a Telemeter; Engineers', Mining and Solar Transits, Wye and "Dumpy" Levels; Surveyors' Compasses, Mercurial and Aneroid Barometers; Sextants, Heliotropes, various forms of Linear Measures, and a large assortment of reconnoitering instruments.

PRACTICAL ASTRONOMY.—This is taught in connection with the course in Geodesy, and the students become familiar with the most approved methods of determining latitude and longitude, and the true meridian, as well as with astronomical operations in general.

TOPOGRAPHICAL DRAWING.—The object of this course is to make the student expert in the execution, in pen work and colors, of finished plans and maps of various kinds of surveys. Except in the necessary preliminary drill, the drawings invariably represent actual surveys made by the different classes. A rigid adherence to the field notes of each survey and a high degree of finish is required in the execution of these drawings.

GRAPHICS.—The instruction in Graphics includes the following branches:

Structure Drawing. A drawing of plan, elevation, and view, sections and details of some railroad bridge, or other structure of approved modern type, to scale from measurements.

Machine Construction and Drawing. A course of lectures, recitations, and practical exercises on the kinematics of machinery, with graphical representation of mechanical movements; theory of link and valve motion; screw propulsion; gearing, including the theory and use of Willis's and Robinson's odontographs; working and finished drawings of machinery, etc. Text-book: Warren's Machine Construction and Drawing. Reference authors: On Kinematics, Machinery of Transmission, etc.,—Reuleaux, Weisbach, MacCord, Kempe; on Link and

Valve Motion—Auchincloss, Zeuner; on Screw Propulsion—Burgh, Bourne, Lennett.

Stereotomy. A course on the application of Descriptive Geometry to stone-cutting, practically applied by the student in cutting a voussoir of plaster to given shape by means of templets, patterns, etc., derived from his own drawings. Text-book, Warren's Stone-Cutting.

THESIS.—Every Candidate for the Degree of Civil Engineer is required to prepare and submit to the approval of the Professor of Civil Engineering, a design for, or a review of, some special machine, structure, or process, as a Graduation Thesis.

SYNOPSIS OF COURSE.

FRESHMAN YEAR.

First Term.

MATHEMATICS, ENGLISH, MODERN LANGUAGES, AND INDUSTRIAL DRAWING as in the course in General Science. GEODESY: *The Measurement of Lines;* with common chains and tapes; with city surveyors' chains, tapes and rods; with Geodesic Secondary Base-Line Apparatus; chain surveys and computation of areas. Theory and practice; [18]. *The Measurement of Angles;* with different kinds of compasses; chain and compass surveying, including the simpler methods of determining the True Meridian and Magnetic Declination. Theory and practice: [12].

Second Term.

MATHEMATICS, ENGLISH, MODERN LANGUAGES, PLANE PROBLEMS AND DESCRIPTIVE GEOMETRY, as in the course in General Science.

Third Term.

MATHEMATICS, ENGLISH, AND MODERN LANGUAGES, as in the course in General Science. TOPOGRAPHICAL DRAWING: Drawings representing the conventional symbols separately and in combination; Lettering; [35].

SOPHOMORE YEAR.

First Term.

MATHEMATICS, DESCRIPTIVE GEOMETRY, CHEMISTRY, MINERALOGY, ENGLISH, MODERN LANGUAGES, as in the course in General Science. GEODESY: Chain and Compass survey of an estate; [12].

Second Term.

MATHEMATICS, CHEMISTRY, ENGLISH, MODERN LANGUAGES, SHADES, SHADOWS AND PERSPECTIVE, as in the course in General Science. STEREOTOMY: Structure Drawing; [20]. GEODESY: Problems in the partition of lands; surveys of public lands; structure and adjustments of engineers' field instruments; [15]. TOPOGRAPHICAL DRAWING: Finished map of the farm survey; [35].

Third Term.

MATHEMATICS, CHEMISTRY, ENGLISH, MODERN LANGUAGES, as in the course in General Science. GEODESY: the measurement of angles with Transits and Theodolites; the computation of lines and angles from the field notes of Triangulations; Levelling for Bench Marks, Profiles and Cross Sections; Topographical surveying. Theory and Practice; [28]. TOPOGRAPHICAL DRAWING: Contour Maps; Drawings of Profiles and Cross Sections; [16]. STEREOTOMY: Structure Drawing; [26].

JUNIOR YEAR.

First Term.

MATHEMATICS, PHYSICS, ENGLISH, PSYCHOLOGY, as in the course in General Science. GEODESY: Measurement of heights with Barometer and Thermometer; Hydrography; Surveying with the Stadia and Gradienter; Solar Compass; Town, Plane-Table and Mine Surveying. Theory and Practice; [60].

Second and Third Terms.

PHYSICS, ENGLISH, LOGIC OR PSYCHOLOGY, as in the course in General Science. MECHANICS: Analytical Mechanics of

Solids and Fluids; [76]. GEODESY: Preliminary and Location Surveys of Routes; Staking out for Construction. Theory and Practice; [30]. TOPOGRAPHICAL DRAWING: Hydrographic Charts; Town Maps; Plans and Profiles of Mines; Colored Topography; Maps of Landscape Surveys; [72].

SENIOR YEAR.

First Term.

GENERAL ASTRONOMY, as in the course in General Science. APPLIED MECHANICS: Elasticity and Strength of Materials; Theory of Stresses in Roofs and Bridges; [90]. STEREOTOMY: Machine Construction and Drawing [28]; Stone Cutting, Theory and Plates; [24.] PRACTICAL PHYSICS: Advanced study of Terrestrial Magnetism and Electro-dynamics; [15.] PRACTICAL ASTRONOMY, as in Elective course of Academic Department; [15].

Second and Third Terms.

GENERAL ASTRONOMY, as in the course in General Science. APPLIED MECHANICS: Stability of Walls and Arches; Practical Hydraulics; [49]. MACHINES: General Theory; Hydraulic Motors; Theory of Steam and Air Engines; [60]. CONSTRUCTIONS: Materials of Structures; Dressing and Preservation of Materials; Foundations; Details of Roofs and Bridges; Construction of Roads, Railroads, Canals and Tunnels; Water Supply and Drainage; Heating and Ventilation; [80]. TOPOGRAPHICAL DRAWING: Preliminary and Final Drawings of Routes; [25]. GEODESY: Higher Geodesy; [15]. PRACTICAL ASTRONOMY, as in Elective course of Academic Department; [15]. PRACTICAL PHYSICS: Advanced study of Terrestrial Magnetism and Electro-dynamics; [15].

NOTE.—It will be noticed that the above list of studies does not provide for regular instruction in the Modern Languages after the Sophomore year. It is, therefore, necessary to explain that a partial equivalent for such instruction has been provided by the use of French and German books of reference in some of the technical courses of the Junior and Senior years.

EXAMINATIONS, STANDING AND GRADUATION.

EXAMINATIONS.

Regular Examinations ordinarily take place at the end of a term; each class being examined in the studies of the term. Occasionally, when a course of study is finished before the close of a term, the examination takes place when that study is completed; but such examinations are not allowed to interfere with the regular exercises in other studies.

Examinations are for the most part conducted in writing, but in certain subjects are wholly or partly oral. Private examinations are not allowed except in extreme cases, and by special permission of the Faculty. Absence from an examination, except for reasons of absolute necessity, will be regarded as a serious delinquency, and a subsequent examination will not be granted except by a vote of the Faculty.

Regulations Concerning the Removal of Conditions.

The minimum grade for passing examinations is sixty in every department, the maximum grade being one hundred.

A student whose grade is below fifty in more than two departments is dropped from his class.

Other students who have been conditioned, or who, from any cause, have not passed the examinations in the studies of any department, will meet in the old Chapel, on the second day of the following term, at 10 A. M., prepared for an immediate examination in those studies.

Those who then fail may, by permission of the Faculty, have another examination, not later than the end of the first month of the term. Of the students who are still found deficient, only those who have shown great industry during the term in which the re-examinations were held, and who, in

the opinion of the Faculty, are able to keep up with their respective classes, may be allowed to continue with the same, until the close of the college year.

All conditions standing against a student at the end of the college year must be removed within a week after the opening of the next term. Failing to remove such conditions, the student will be required at once to join the next lower class.

STANDING.

The results of the term examinations are combined with those of the recitations to decide the relative standing or grade of the student during the term. In computing grades, each study, elective or required, is estimated relatively to the others according to the number of hours which it occupies in the weekly schedule of lectures and recitations. The conduct of the student and his attendance also affect his standing. The maximum grade in each department is one hundred; the minimum, or passing grade, is sixty. A student whose grade, as determined by the combination of his examination and recitation marks, falls below sixty, is conditioned, and in order to continue with his class must be re-examined. A report of the standing of each student is made to his parent or guardian by the Registrar of the College at the close of the first term and at the end of the year. The last report gives the student's standing for the year.

The final grade of a student is calculated from all the grades received by the student during his College course.

GRADUATION.

Students who have fulfilled the requirements of the Undergraduate Courses, passing satisfactory examinations in all their studies and presenting an acceptable graduation Thesis, are ordinarily recommended by the Faculty for the Degree attached to the course they have pursued, and if the recommendation is approved by the Trustees they receive diplomas signed by the President and the Clerk of the Board of Trustees.

The graduation Thesis will be publicly read and defended by the student during Commencement week.

GRADUATE COURSES

IN THE

ACADEMIC AND SCIENTIFIC DEPARTMENTS.

Provision has been made for courses of instruction open to resident graduates of this and other Colleges, under the following regulations:

Every instructor in the College shall be at liberty, with the leave of the Faculty, to give instruction to graduates. He shall meet with his class for at least one hour a week, and not more than three hours a week, during the Academic year, and shall require the members of his class to undergo rigid examinations on the course pursued.

Each graduate student attending instruction regularly, and passing the examinations, is entitled to a certificate stating what he has done, signed by the President in behalf of the college.

Students by pursuing these courses may also qualify themselves for the degrees, Master of Science, Doctor of Science, or Doctor of Philosophy, according to the regulations prescribed under *Doctor's and Master's Degrees*.

Each graduate student shall pay twenty-five dollars for every course of instruction that he enters requiring an hour per week (provided no student shall pay more than an undergraduate), and shall defray whatever expense may be incurred by the use of instruments and materials employed by him. This charge may be remitted in whole or part where the circumstances of the student require it. All undergraduate courses of lectures or instruction are also open to graduate students without the payment of any fees except for material used.

Arrangement for the graduate courses should be made by application to the individual instructors.

Graduate courses in the following subjects are announced for the present year: Contemporary Philosophy, Plato and his

Philosophy, Latin, Sanskrit, Physics, Higher Mathematics, Theoretical Astronomy, Biology. The above courses are conducted by advanced lectures or instruction.

Opportunity is also offered to graduates for work in the following subjects in connection with the regular undergraduate courses: Anglo-Saxon, English Literature, Psychology, History of Philosophy, Geology, Mineralogy, Biology, Physics, Practical Astronomy, Analytical and Applied Chemistry, Assaying, Topography.

GRADUATE COURSES.

Discussions in Contemporary Philosophy.

This class meets once a week and is conducted by the President, who after every two lectures presides at a discussion. The principal speculative questions of the day, those that raise doubts and difficulties in young minds, are taken up. No. I of Dr. McCosh's *Philosophic Series* is used, not so much as a textbook as a guiding thread in the discussions. I. In Metaphysics: Are there First Truths—or is all Knowledge got by experience? Under this head there is a notice of Locke and Hume, followed by an elaborate criticism of Kant. II. In Ethical Science: Are conscience and morality generated by circumstances? or is there an inherent destinction between good and evil? Here there is a lengthened review of Herbert Spencer's Physiological Psychology. III. In Physical Science: What is the Nature and what are the Limits of Law and Development? IV. In Cosmogony: What is our World? Optimist? Pessimist? or what?

Plato and His Philosophy.

This course, conducted by Professor Orris, is on the writings and philosophy of Plato, as follows: Plato's Republic, alternating with his Theætetus; Analysis of his Higher Dialogues; Lectures and Dictation, on his Philosophy and Teachings; Instruction in the Language.

History.

One exercise a week throughout the first and second terms. Subject: Historical Methods and Historical Systems.

Latin.

Professor Packard reads with a graduate class, selections from the following Latin works: Cicero's philosophical writings, Seneca's Moral Epistles, Tertullian and Augustine; or Early Sources of Roman Law.

English and American Literature.

This course by Professor Murray, for the year 1885–6, will comprise lectures on the following subjects:

1. Comparative Literature.
2. Dramatic Literature:
   (a) The Plays of Marlowe;
   (b) Shakspeare's Historical Plays;
   (c) The Comedies of Ben Jonson.
3. American Literature.

Sanskrit.

In this course, conducted by Prof. Winans, special attention is paid to the bearing of the language on Philology and Comparative Grammar. The various phenomena of the language, its roots, forms, inflections, are considered in detail in their relations to those of other Aryan tongues. The following is an outline of the early stages of the course: Bühler's Leitfaden für den Elementarcursus des Sanskrit, a series of graded lessons on the plan of Greek and Latin first lessons; reading of several books of the Nalopâkhânam, an episode in the great Hindoo epic, the Mahâbhârata,—with review of Sanskrit Grammar, (Whitney's); next, selections from the Hitopadeça. Two exercises a week. Members of the Junior or Senior class may pursue this course as an optional study.

Physics.

These courses consist during the present year of a theoretical course in Electricity, and a laboratory course on the same subject. The works of Mascart and Joubert on "Electricity and Magnetism," and of Clerk Maxwell on Electricity are used as text-books, with references to Thomson and Tait's "Natural Philosophy," and to special treatises and the topics treated. In

the laboratory course special problems are investigated experimentally. Wiedemann's "Die Lehre von der Electricität" and other works are used for reference. Professor Brackett and Mr. Carman conduct this course.

Higher Mathematics.

There are at present two graduate courses in Mathematics conducted by Mr. Daniels, as follows: One in the advanced Calculus with Definite Integrals and modern applications of the Calculus and Determinants; the second an introduction to the theory of Analytic Functions, chiefly after the methods of Weierstrass, including an account of Riemann's Theory of Surfaces, the general theory of Isomorphic Projections, and the theory of Elliptic Functions and Integrals.

Astronomy.

This course is conducted by Professor Young and Mr. McNeill. It consists of:

(a) Practical Astronomy—the same as in the Senior elective, previously described in the course of study of the Academic Department. This is open to such graduates as did not take it in their College course.

(b) Theoretical Astronomy—one hour weekly through the year. This course consists in the reading of Watson's Theoretical Astronomy, supplemented by selections from Oppolzer and Klinkerfues, and includes the calculation of the orbit of a planet or comet from actual observation.

Biology.

A thorough advanced course in Biology has been established in connection with the Geological, Zoölogical, Botanical, and Chemical departments, the objects in view being (1) to foster a spirit of original research, (2) to qualify advanced students to become teachers. This course is open to College graduates, also to students presenting diplomas from recognized medical schools. After the student has pursued this course in full, and passed at the close a thorough examination in the various subjects, he is entitled to the degree of Master of Science; he is also

entitled to compete for the E. M. Biological Fellowship (see page 129). This course is open also to students who are not qualified to become candidates for the degree, but who possess sufficient elementary knowledge to profit by the instruction.

The following subjects of instruction are arranged for :

Professor Macloskie—I. Anatomy and Embryology of the Higher Invertebrates. II. Vegetable Morphology and Histology.

Professor Cornwall—Physiological Chemistry.

Professor Libbey—I. The Microscope and Microscopic Technology. II. Histology. III. Deep Sea Soundings and Dredging ; recent methods and results.

Professor Osborn—I. Comparative Anatomy of the Vertebrates. II. Elements of Embryology.

Professor Scott—I. Vertebrate and Invertebrate Palæontology. II. Advanced Embryology.

These courses are of a comprehensive and elastic character, and, according to the requirements and wishes of different students, include much laboratory work under the supervision of the instructors. At the close of the first term, the student may select a department of special study for his Thesis, which must present the results of original work.

THE COLLEGE OF NEW JERSEY.

The College originated by Royal Charter under President Dickinson in 1746. A second more ample charter was granted in 1748. After the war of the Revolution, the charter was confirmed and renewed by the Legislature of New Jersey.

The College embraces a Board of Trustees and a Faculty of Instruction with certain additional officers employed in the administration of affairs. The undergraduate Societies and Alumni Associations, though not strictly parts of the organization of the College, are fostered by it, and coöperate with it.

The Corporation is styled "The Trustees of the College of New Jersey." By its charter it holds and administers the property of the College, appoints the President and Faculty, makes laws for the government of the Institution, and confers the degrees. The Board is a self-perpetuating body, composed of twenty-seven members, with the Governor of the State as President *ex officio*, or in his absence the President of the College.

The Faculty, consisting of the President, the Professors, and Tutors, conducts the instruction and discipline of the College, aided by Instructors and Lecturers.

ALUMNI ASSOCIATIONS.

ALUMNI ASSOCIATION OF NASSAU HALL.

Founded 1826.

1st President—JAMES MADISON of Virginia, Class of 1771.

President.

Rev. JOHN MACLEAN, D.D., LL.D., '16, Ex-President of the College.

Vice Presidents.

GEORGE MACLEAN, M. D., '24, JOS. T. THOMAS, Esq., '35.
PARKE GODWIN, Esq., '34, WILLIAM PATTERSON, Esq., '35.

Secretaries.

Prof. JOHN T. DUFFIELD, D. D., '41.
Prof. HENRY C. CAMERON, D. D., '47.

Meets in the Chapel at 1 P. M. the day before the Annual Commencement, and dines at the University Hotel. Membership includes all graduates of Princeton College.

PRINCETON COLLEGE ALUMNI ASSOCIATION OF NEW YORK.

President.

WOOLSEY JOHNSON, M.D., '60.

Secretary.

JONAS M. LIBBEY, ESQ., '77, 2 Nassau Street.

Treasurer.

M. TAYLOR PYNE, ESQ., '77, 26 Exchange Place.

Annual Meeting held in May.

PHILADELPHIA ALUMNI ASSOCIATION OF PRINCETON COLLEGE.

Founded May 1868.

President.

HON. BENJ. HARRIS BREWSTER. LL.D., '34.

Secretary.

GEORGE FREDERICK KEENE, Esq., '66, 425 Walnut St., Phila.

Treasurer.

JOSIAH R. ADAMS, Esq., '73.

Annual Meeting, second Tuesday in September.

ALUMNI ASSOCIATION OF THE COLLEGE OF NEW JERSEY, FOR THE DISTRICT OF COLUMBIA AND THE SOUTHERN STATES.

Founded 1872.

President.

HARVEY LINDSEY, M.D., LL.D., '20.

Secretary.

JOHN H. VOORHEES, ESQ., '41, cor. 9th and F Sts., Washington, D. C.

Treasurer.

A. B. KELLY, ESQ., '70.

Annual Meeting, third Thursday of January.

PRINCETON ALUMNI ASSOCIATION FOR THE NORTHWEST.

President.

CLINTON C. CLARKE, ESQ., '60.

Secretary.

WALTER BUTLER, ESQ., '52, Box 43, Chicago, Ill.

Treasurer.

FRANK H. MATTHEWS, ESQ.

Meets in November or December, as appointed by Executive Committee.

PRINCETON ALUMNI ASSOCIATION OF WESTERN PENNSYLVANIA.

President.

JAMES LAUGHLIN, JR., '68.

Secretary.

W. P. SCHELL, ESQ., '70, Pittsburgh, Pa.

Treasurer.

GEO. S. LEWIS, ESQ., '74.

Annual Meeting, last Tuesday of August.

PRINCETON ALUMNI ASSOCIATION OF CINCINNATI.

Founded 1876.

President.

COL. JAMES W. ABERT, '38.

Secretary.

FRANK H. KEMPER, ESQ., '78, cor. 4th and Vine Sts., Cincinnati.

Treasurer.

P. A. REECE, ESQ., '75.

Annual Meeting, second week in April.

PRINCETON ALUMNI ASSOCIATION OF ST. LOUIS.

President.

HON. S. M. BRECKENRIDGE, LL.D., '45.

Secretary and Treasurer.

K. D. MELLIER, ESQ., '69, 709 Washington Avenue, St. Louis.

Annual Meeting, in April.

PRINCETON COLLEGE ALUMNI ASSOCIATION OF THE PACIFIC COAST.

President.

REV. A. WILLIAMS, '29.

Secretary.

J. M. ALLIS, ESQ., '66, San Francisco, Cal.

Meets annually.

PRINCETON ALUMNI ASSOCIATION OF OMAHA.

Founded 1884.

President.

PROF. C. M. DES ISLETS, '68.

Secretary.

REV. W. J. HARSHA, '74, Omaha, Neb.

Treasurer.

REV. T. C. HALL, '79.

Annual Meeting, in April.

DOCTOR'S AND MASTER'S DEGREES.

Master of Arts.

The degree of A. M. may be conferred two years after graduation, upon any Bachelor of Arts who shall have devoted one of the years exclusively to study in the College under the care of the Faculty, passing rigid examination upon the studies pursued; or, who shall have taken at least one graduate course each year for the two years and passed satisfactory examinations upon his work.

The same degree may be conferred three years after graduation, upon any Bachelor of Arts who is pursuing one of the learned professions, (including teaching), or who, on or before May 1st, of the year in which he seeks the degree, shall have submitted to a committee appointed by the Board of Trustees, a satisfactory paper, literary, philosophical or scientific.

Master of Science.

Bachelors of Science who shall have devoted one year in this College exclusively to the study of such of the following subjects as the Faculty shall prescribe, and who shall have shown satisfactory proficiency therein by Dissertations and Examinations, may apply for the degree of Master of Science (M. S.). The prescribed subjects are:—*Biology*, *Mathematics*, *Rational and Applied Mechanics*, *Practical Astronomy*, *Applied Chemistry*, *Qualitative Analysis*, *Quantitative Analysis*, *Physics*, *Mineralogy*, *Drawing*, *Modern Languages*.

Any Bachelor of Arts, who after examination may be found to be prepared to pursue a graduate course in Science, may become a candidate for the Degree of Master of Science on the same conditions as a Bachelor of Science.

Special Regulations for the Graduate Course in Biology.

1. The Courses leading to a Degree are open only to graduates of this and other colleges; or to students presenting diplomas from recognized medical schools. Other students may attend the Lectures and Laboratory work, but will not be eligible for a Degree.

2. At the close of the first term, the student may elect a department of special study for his Thesis. This Thesis should present the results of original work pursued under the direction of the Instructor. If the student pass all his examinations at the close of the year, and his Thesis be satisfactory to the Board of Instructors, he will be entitled to the degree of Master of Science (M. S.). Attached to the Diploma will be a statement that the Degree has been awarded for proficiency in Biology.

3. The Theses which are accepted as giving title to a Degree on the recommendation from the Board of Instructors, will be published in the Bulletins or Memoirs of the E. M. Museum.

Doctor of Philosophy.

A Bachelor of Arts who has devoted all his time to a two years graduate course in the College, taken a prescribed course of special reading, passed a rigid examination on subjects studied, and presented a thesis giving evidence of original research and high attainment, may apply for a degree of Doctor of Philosophy.

Doctor of Science.

A Bachelor of Arts or of Science, who has devoted all his time to a two years graduate course of scientific studies in the College, passed rigid examinations on the subjects studied, and presented a thesis containing the results of original research, may apply for the degree of Doctor of Science.

Honorary Degrees.

The Degrees of Doctor of Divinity (D.D.) and Doctor of Laws (LL.D.) are conferred solely *honoris causa;* the other degrees above named, excepting only the degree of A. B., are also sometimes conferred in the same manner.

FELLOWSHIPS, PRIZES AND COMPETITIVE SCHOLARSHIPS.

Besides the degrees and honors conferred in the regular course, annual Fellowships, Prizes and competitive Scholarships* are offered as special incentives to study, in the classes or departments with which they are connected.

Only matriculated students who are candidates for a degree are admitted to the competition for Fellowships, Prizes and Scholarships, and none are admitted to such competition who have failed to pass satisfactorily their last preceding examination in any of the departments.

No member of any class is allowed to compete for more than one of the Fellowships or Scholarships offered to that class.

The names of the Fellows, Prizemen and Scholars of each year are included in the Honor List for the year.

FELLOWSHIPS.

Every competitor must have been a member of the College in full standing for at least two Academic years previous to the Fellowship examinations.

No student whose final rank for scholarship is below the Third General Group can be a competitor for any Fellowship; and no student can be a competitor for the Fellowship of any particular department whose rank for the last two years of his course is below the Second Group in that department.

Every Fellow obtaining any one of the $600 Fellowships must devote his whole time for one year to study in the department for which the Fellowship is provided, under the direction

*For Endowed Scholarships see page 146.

of the Professors in that department. He must reside in Princeton, and pass two rigid examinations on his work, unless by a vote of the Faculty he be allowed to study at an approved foreign University, in which case he shall from time to time furnish written reports of his work to the Professors in his department. The result of every examination and the reports of work done abroad shall be immediately reported to the Faculty. If resident in Princeton, he shall be allowed to occupy free of cost in one of the College buildings, a room assigned to him by the College authorities. He shall be regarded, while occupying such place, as a resident officer of the College, and he shall when called on, perform such duties in the department to which he belongs as may be assigned to him by the President at the request of the Professors in that Department.

THE CHANCELLOR GREEN MENTAL SCIENCE FELLOWSHIP.

This Fellowship, originally founded in 1870 upon the annual payment of $600 by the late ex-Chancellor Henry W. Green, was permanently endowed in 1878 by a bequest of $10,000 in his will.

The sum of $600, to be paid quarterly, will be awarded to the member of the Senior Class who may write the best essay on *The Psychological Utilitarianism of Herbert Spencer*, (to be given in on or before June 1), and who may stand highest at a special examination to be held in June, on the following subjects:

A general knowledge of the Philosophies of Plato, Aristotle, Descartes, Locke, Leibnitz, Hume, Kant, and Hamilton. Cicero De Officiis, Book III, *De Contentione Honesti et Utilis*. Theoretical Ethics, Psychology and Metaphysics (McCosh's *Intuitions*, Parts I., II., III., Book I). The Syllogism.

THE CLASSICAL FELLOWSHIP.

The Classical Fellowship has been for a time without funds. The sum of $600, payable quarterly, was previously awarded to its successful competitor. A portion of that sum, and probably the full amount, will be awarded to that member of the Senior Class who shall stand highest at a special examination, to be held in June, 1885, on the following subjects:

In Greek.

Translation from English into Greek. Translation of Prose Greek at sight. The *Medea* of Euripides. The *Acharnians* of Aristophanes. Plato's *Protagoras*, and the Philosophy of Plato. History of Greek Dramatic Literature.

In 1886, the special subjects will be: The *Alcestis* of Euripides, Aristophanes' *Knights*, Plato's *Charmides* and *Lysis*.

In Latin.

Translation from English into Latin. Translation of Latin at sight. Four books of Cicero *De Finibus*, with a comparison of the Epicurean and Stoic Ethical Philosophies. History of Roman Literature.

In June 1886, Cicero *De Natura Deorum*, and The Relations of Roman Philosophy to Roman Religion will be substituted for Cicero *De Finibus*, etc.

THE CLASS OF 1860 EXPERIMENTAL SCIENCE FELLOWSHIP.

This Fellowship was founded in 1870 upon the sum of $10,000 subscribed by the Class of 1860. A deficiency of income, resulting from the depreciation of the value of the securities in which the principal was invested, and the lowering of the rate of interest, is paid, by the consent of the donor, from the income of the Magee Professorship of Mining and Engineering, founded by George J. Magee, Esq., of the Class of 1860.

The sum of $600, to be paid quarterly, will be awarded to the member of the Senior Class who may stand highest at a special examination, to be held in June, on the following subjects, viz: 1. Thermodynamics; 2. (a.) The Geology and Chemistry of the carbon products, coal, petroleum, etc.; (b.) The palæontological history of the Mammals; 3. Glass and Pottery.

THE J. S. K. MATHEMATICAL FELLOWSHIP.

The J. S. K. Fund was established in 1873 upon the sum of $11,000, given by a gentleman in New York, $600 of the income of which is devoted to this Fellowship, and $200 to the Freshman First Honor Prize.

This sum of $600, to be paid quarterly, will be awarded to the member of the Senior Class who shall stand highest at a

special examination to be held in June, on the following subjects: Analytical Geometry; Differential and Integral Calculus.

THE BOUDINOT FELLOWSHIPS.

These Fellowships are founded upon a bequest of the late Dr. Elias Boudinot, of New Jersey, and yield each the annual sum of $250.

THE HISTORICAL FELLOWSHIP.—The sum of $250 to be paid quarterly, will be awarded to the member of the Senior Class who shall write the best essay on *The Influence of France in German and English Politics during the Eighteenth Century*, and pass the best examination in June next on *The Age of Louis XIV.* The essay to be presented on or before June 1.

The general subject of examination in 1886 will be *The Political History of the United States to the War of 1812*, and the essay is to be on the question: *Can the Monroe Doctrine be defended as a statement of Political Principle?*

The Fellow shall from time to time during the following year, as may be required by the Professor of History, give evidence by written papers that he is pursuing an approved course of historical investigation.

THE MODERN LANGUAGE FELLOWSHIP.—The sum of $250, to be paid quarterly, will be awarded to that member of the Senior Class who shall pass the best Examination in June, on the following subjects:

A comprehensive knowledge of both the French and German descriptive Grammars. The history of either of these languages, and of their literature. Reading at sight of any given author of the Classical or Recent Period. An essay of not less than four pages (foolscap) in one of these languages. The examination will be conducted both orally and in writing.

The Fellow shall from time to time during the following year, as may be required by the Professor of Modern Languages, give evidence by written papers that he is reading such a course as the said Professor may approve.

THE E. M. BIOLOGICAL FELLOWSHIP.

The sum of $600, to be paid quarterly, will be awarded to that student who shall stand highest at a competitive examina-

tion on subjects assigned by the Professors of the Biological department.

The competition for this Fellowship will be open to any member of the Senior Class in either the Academic or Scientific department, or to any College graduate who shall have pursued, during the preceding year, the graduate course in Biology at Princeton, and who shall, in the opinion of the examiners, be deemed competent to pursue the subject advantageously.

This Fellowship conveys with it the use of a table in the National Seaside Laboratory at Wood's Holl, Mass., together with all the facilities afforded for the collection and study of animal life during the season favorable for such investigations. In the winter months following this laboratory work the Fellow will pursue his studies at Princeton, and will be required to prepare and submit a thesis embodying the results of his summer researches.

The examinations for this Fellowship in 1885 will be held in June upon the following subjects:

1. *The Morphology and Embryology of the Worms.*
2. *The Anatomy of the Worms.*
3. *The Structure of the Vascular Cryptogams.*
4. *The Embryology of the Amphibia and Reptiles.*
5. *The Histology of the Nervous System.*

PRIZES AND COMPETITIVE SCHOLARSHIPS.

THE LYNDE PRIZES.

Three prizes—one of $130, one of $120, and one of $100—the income of $5,000, contributed by Charles R. Lynde, Esq., will be awarded by a committee appointed by the Faculty, to the three successful competitors in a debate on the Monday evening preceding Commencement. The competition will be between six members of the Senior class—representatives of the Literary Societies—selected by Committees appointed by the Societies respectively from their own members in the Faculty.

THE BAIRD PRIZES.

Through the liberality of Charles O. Baird, Esq., the following prizes, representing the income of $6,000, will be given to those who excel in the Oratorical Exercises of the Senior class, viz., The Baird Prize of $100, to the best speaker of those who, during the last three years of the College course, have ranked among the first six writers in any two of the three departments of English Literature, Rhetoric and Oratory; a prize for Oratory of $50, to the best speaker exclusive of the Baird Prizeman, of those who, during the same time and in the same departments, have ranked among the first twelve writers; a Prize for delivery of $30 to the best speaker exclusive of the two just mentioned; also a prize for Poetry of $50; and two Prizes of $40 and $30 respectively for the best and the second best written Disputations.

THE CLASS OF 1859 PRIZE.

The interest of $2,000, given by the Class of 1859, will be awarded to the member of the Senior Class who shall write the best essay on *Thomas Carlyle*, and pass the best examination on Shakespeare's *Timon of Athens*. The essay must be handed in on, or before, June 1, and the examination will be held in June.

N. B.—The subject of the essay for the Class of 1886 will be *The Plays of Philip Massinger*.

SCIENCE AND RELIGION PRIZE.

A medal of the value of $100 (or its equivalent in money), will be awarded to that member of the Senior Class who shall pass the best examination in the department of the Harmony of Science and Revealed Religion, and write the best essay on *The Reign of Law in the Spiritual World*.

THE GEORGE POTTS BIBLE PRIZE.

The yearly interest of $1,000, given in 1867 by Mrs. Sarah A. Brown, expended in the purchase of two copies of Matthew Henry's Commentary on the Bible, will be presented to the two best Biblical scholars of the Senior Class at the end of their College course.

THE LYMAN H. ATWATER PRIZE IN POLITICAL SCIENCE.

This Prize, being the annual interest on the sum of $1,000, contributed by the Class of 1883, was instituted as a memorial of Rev. Lyman H. Atwater, D.D., LL.D., Professor of Political Science. It will be given to that member of the Senior Class who shall be adjudged by the Professors of Political and Social Science, to have passed the best examination and written the best essay. The subject for the examination in 1885 will be *The Relations of Common Carriers to the State and Federal Government;* and the subject for the essay will be *The Protest of England against Absolutism.* The essay must be ready June 1, 1885; the date of the examination will be announced at that time.

JUNIOR ORATOR MEDALS.

Four gold medals, or books of equal value, will be awarded by a committee appointed by the Board of Trustees, to the four successful competitors in an Oratorical Contest on the Monday evening before Commencement. The competition will be between eight members of the Junior Class—four from the Cliosophic and four from the American Whig Societies—selected by committees appointed by the Societies respectively from their own members in the Faculty.

THE MACLEAN PRIZE.

The Maclean Prize, founded by the will of the late Henry A. Stinnecke, consisting of the sum of $100, will be given to that one of the Orators chosen by the Literary Societies from the Junior Class who shall on the Monday evening before Commencement pronounce the best English Oration.

The Committee of Judges will be composed of the Professor of Rhetoric and two graduates of the College appointed by the Board of Trustees.

DICKINSON PRIZE.

The Dickinson Prize, founded by John Dickinson, Esq., of New Jersey, in 1782, consisting of a medal of the value of $60 (or its equivalent in money), will be awarded to that member of the Junior Class who shall write the best dissertation upon the subject of *The Philosophical Value of Theism.* The dissertation to be presented on or before June 1.

THE WOOD SCHOLARSHIP.

The sum of $150, the income of a legacy of Dr. George B. Wood, will be awarded to the member of the Junior Class who stands highest for the Junior year.

THE STINNECKE SCHOLARSHIP.

The Stinnecke Foundation was established in 1870 by the will of the late Henry A. Stinnecke, of the Class of 1860, and was supplemented by a bequest received in 1876 from his aunt, Miss Maria Stinnecke. The income is divided between the Stinnecke Scholarship of $500, and the Maclean Prize of $100.

The Stinnecke Scholarship, of the annual value of $500, tenable during the College course, unless forfeited by neglect of study, "will be given to that person who, having entered the Sophomore Class, shall pass the best examination at the opening of the session in September, 1887, in the Odes of Horace, the Eclogues of Virgil, and the Latin Grammar and Prosody, as well as the Anabasis or Cyropœdia of Xenophon and the Greek Grammar." Students of the College who have been members of the Freshman Class, as well as those entering the Sophomore Class, will be admitted to such examination. The committee of examiners is appointed by the Trustees.

THE CLASS OF 1861 PRIZE.

The interest of $1,200, given by the Class of 1861, will be awarded to that member of the Sophomore Class who shall pass the best examination in June next on those portions of the Mathematical course of the Sophomore year which shall be specially designated by the Professor of Mathematics.

THE FRESHMAN FIRST HONOR PRIZE.

A prize of $200, part of the income of the J. S. K. Fund, to be paid in quarterly installments during the following year, will be awarded to that member of the Freshman Class, who having entered said class at the beginning of the College year, shall, at the end of such year, be reported to the Trustees by the Faculty as having attained the "highest average grade" in Scholarship, provided he pursue his studies in this College, and maintain a

good standing during the Sophomore year. No student who has been suspended from College, or who has been put upon his last probation, shall be eligible to this Prize.

SOCIETIES.

Literary Societies.

The Cliosophic and American Whig Societies originated early in the history of the College. They are conducted by the undergraduates, but also include in their organization graduates and officers of the college. Both possess halls containing the rooms for meeting, reading rooms and valuable libraries of over 8,000 volumes each. They both pursue courses of literary exercises, award numerous prizes for orations, essays, and debates, and grant diplomas to their respective graduates.

A generous competition for College honors has always prevailed between them, and they engage annually on the evening before Commencement in a public debate, and a competition in oratory, by representatives from the two societies. The details respecting the Lynde Debate and the Junior Orations will be found on pp. 130, 132.

These Societies are considered a part of the educational appliances of the College, and students are advised to join them.

The Philadelphian Society.

This is a Society composed of undergraduates, united by a covenant of mutual religious faith and sympathy. It was founded in the year 1825, and has always been an active and successful agency in promoting the religious life of the College. Devotional meetings are held on Thursday and Saturday evenings, under its direction, often conducted by members of the Faculty. Murray Hall, the building belonging to the Society, was erected from a bequest left for the purpose by Hamilton Murray of the Class of 1872. It contains, besides the room for worship, a reading room supplied with religious books and periodicals.

The St. Paul's Society.

The St. Paul's Society is an association similar in nature and aim to the Philadelphian, and is intended to be helpful, devotionally and practically, to those students in the College who have been accustomed to the worship of the Protestant Episcopal Church. It has weekly meetings, conducted by the students, and it has commonly had a course of sermons, delivered in Trinity Church, under its auspices.

BUILDINGS.

The buildings centre around Nassau Hall, which dates back nearly to the foundation of the College, having been erected in 1756. One wing of this building is still occupied by students. The central and eastern portions contain the Geological Museums and Lecture room. The School of Science building, the Chancellor Green Library, Murray Hall and several of the dormitories have been erected within the last twelve years, and the Marquand Chapel, the gift of H. G. Marquand, Esq., of New York, was built in 1882. The Academic lectures and recitations are conducted mainly in Dickinson Hall, while the scientific lecture-rooms and laboratories are principally in the building of the John C. Green School of Science. A majority of the students reside in the six dormitories upon the Campus.

THE CHANCELLOR GREEN LIBRARY.

The College Library began with the College itself, in a bequest of books by Governor Belcher. The first catalogue, printed in 1760, shows that it then consisted of more than twelve hundred volumes. It suffered much during the revolutionary war, and it was burnt, with Nassau Hall, in 1802. The gifts of many liberal friends soon reëstablished it, and it slowly advanced to 9,313 volumes in 1854. The want of resources for its increase kept it small, till the Elizabeth fund of $50,000 was created by Mr. John C. Green in 1868. When the present library building was erected by him, in 1872–73, the collection contained about 25,000 volumes. Since that time its progress has been rapid, and it now consists of more than 60,000.

The liberality of those who represent his estate has permitted an average yearly increase of 5,000.

Perhaps the library is strongest in the departments of Mathematical, Physical, and Natural and Mental Science. But it is rich, also, in Philology and Literature. Few libraries surpass it, in respect to works on the origin and early history of our language, and our race. Generous efforts have been made to enrich it with the serial issues of scientific associations abroad. A collection of books on fine art, soon to be largely increased, may be seen in a separate room. Each Professor nominates books for purchase in his own department.

The arrangement of books upon the shelves is by topics, and a pamphlet elucidating this arrangement is kept on every table and given on application to every student. The subject-catalogue of 984 pages is now completed. A manuscript appendix, constantly increasing, is accessible on application at the desk. For the present, students are allowed free access to the alcoves. A large collection of books of reference is kept constantly on the shelves, consisting of twenty encyclopedias, seventy periodicals, and the dictionaries of twenty languages.

At the west end of the building is a reading room for the Faculty, furnished with more than fifty periodicals of high character. Students are admitted on application at the desk, and they may borrow the past issues of each periodical when a new number has reached the table.

Library Hours.

The Library is open every secular day: for the delivery and exchange of books from 10 A. M. to 1 P. M., and from 2 to 4 P. M.; for the consultation of books from 10 A. M. to 1 P. M., and from 2 to 5 P. M. The use of books is allowed, under the rules, to all the students. Resident graduates have the same privileges in the Library as undergraduates.

MUSEUMS.

The E. M. Museum of Geology and Archæology.

This Museum, occupying the central and eastern wings of Nassau Hall, contains collections which are distributed in three

general departments of Geology (including Mineralogy), Palæontology and Archæology. Their arrangement is especially adapted to the purposes of comparative study.

In the GEOLOGICAL DEPARTMENT a special Room contains a unique collection of over 5,000 specimens of erratic boulders and drift materials from Switzerland. There is also a special room devoted to the typical rocks and fossils of the State of New Jersey. A collection of the typical rocks of the State of New York represents the series as described in the Geological Survey of that State.

There is in this department a large collection of minerals, containing about 2,600 specimens, left the College by the late Archibald MacMartin, of New York. The perfection of the specimens, and the number of localities represented in each family, make this collection one of special value.

The collections of the PALÆONTOLOGICAL DEPARTMENT fill two large halls, with extensive galleries. The central hall, or Synoptic Room, is especially designed and arranged with reference to the general course of Geology. There are mounted casts of the gigantic reptiles and mammals of the secondary, tertiary and quarternary ages. Around these the characteristic fossils of each of the great ages of life form as many groups, which follow each other in chronological order, while within each group the fossils are arranged according their zoölogical affinities. The typical fossils selected agree, as far as possible, with those mentioned in Dana's Geology, as characteristic of different geological periods.

The upper or eastern hall contains the main collections for advanced students; on the platform are the skeletons of a Mastodon, an Irish Elk, a Cave Bear, and some of the extinct birds of New Zealand; also the skulls of Uintatherium and Loxolophodon. Surrounding the room is a very perfect collection of vertebrate and invertebrate fossils from Europe and America, illustrating the vertebrate and invertebrate forms of all the geological epochs. Included in this series are the fine Eocene and Miocene fossils, procured in the West by the various Princeton collecting parties. There is also a series of fossil insects and plants from Colorado. Altogether the number of fossils, not counting duplicates, is 9,000.

ARCHÆLOGICAL DEPARTMENT.—Here are relics of the Swiss Lake Dwellings, and numerous implements of stone and bronze from Denmark; also several hundred flint instruments from most of the classical localities of the palæolithic and neolithic ages of France.

America is represented in the pottery and human remains of the mound builders, by several hundred specimens of Mexican and Peruvian Pottery, and by a number of recent Indian relics. The interesting ethnological collection of objects, chiefly from Alaska and New Mexico, which Dr. Sheldon Jackson presented to the Theological Seminary of Princeton, has been transferred to this Museum by the Trustees of that institution, with the consent of the donor. The Archæological Gallery contains also a series of models of the Cliff-ruins of the Southwest executed under the direction of Dr. Hayden.

Below the eastern Hall are the lecture and working rooms.

Zoölogical Museum.

The collections forming this Museum have been chiefly made from the endowment fund of the John C. Green School of Science. There have also been many smaller donations to the Museum from time to time. The collections are placed in the large upper hall of the School of Science building, and are at present especially rich in osteological specimens. On the same floor are the Laboratory and working rooms of the Curator of the Museum. The collections of vertebrates include a large number of mounted and disarticulated skeletons of the mammals, reptiles, birds and fishes; also a carefully mounted stuffed series of the birds of New Jersey, and of other districts of North America, besides alcoholic specimens. A feature of the Ornithological collection is the very large number of unmounted bird skins, arranged for purposes of comparative study of the plumage, feet and beak. Among the invertebrates are a series of Ascidians, Echinoderms, Mollusks, Crustaceans, Insects, Worms, Corals, Sponges, and microscopic preparations of small forms. A number of mounted and disarticulated skeletons have recently been added to the Osteological collection, including a Rhinoceros. The whole collection has also been catalogued and num-

bered. Students should apply to the Assistant Curator for access to the catalogue and cases containing the skeletons.

Herbarium and Botanical Laboratory.

This is on the second floor of the School of Science building, and is arranged as a Museum for the botanical collections, also as a working laboratory for students. The plants are classified according to Bentham and Hooker's *Genera Plantarum*, and include specimens from the different sections of the United States, and from Europe and Australia. There are extra specimens for laboratory use, and dissecting and compound microscopes, anatomical instruments, section cutters, models, diagrams, and books of reference.

The Biological collections have been recently increased by donations of marine molluscs, algæ, and land-plants, collected by Rev. J. E. Peters, and by the purchase of the Botanical treasures of the late Mr. C. F. Parker, including his Flora of New Jersey.

LABORATORIES AND APPARATUS.

Physical Laboratory and Apparatus.

The Physical Laboratory is fitted up with tables and other arrangements to accommodate about twenty students at once. Besides the appliances usually employed in lecture demonstrations, the cabinet of apparatus contains all the instruments of precision required in the experimental courses.

The following deserve special mention :—A fine balance by Becker, sensitive to one milligramme under a load of twenty kilogrammes. A Cathetometer (Grunow), with scale of one metre. A dividing engine and comparator (Rogers). A cylinder Chronograph, for all time observations in the laboratory, in electrical communication with the standard clock of the astronomical observatory. A diapason Chronograph (Koenig), for minute intervals of time. Pendulum apparatus, of both Borda's and Kater's forms. A Spectrometer (Fauth) with 18 inch circle reading by microscope to single seconds. Ditto (Grunow), with

smaller circle, reading to 10″. Ditto (Stackpole), reading to 30″. A number of diffraction gratings (Rutherfurd and Rowland), ruled upon glass and speculum metal; to be used with these spectrometers. A large spectroscope, with dispersive power of twelve prisms (Browning). Sir William Thomson's absolute electrometer and quadrant electrometer (White). Lippmann's capillary electrometer. A set of accurate resistance coils, and standard condenser (Elliot). A large number of galvanometers suited to the different requirements of the laboratory. Sets of standard thermometers; apparatus for calorimetric inquiries; photometers, etc.

Chemical Laboratories.

The laboratory and cabinets of the department of General Chemistry are fully equipped for the illustration of the courses in the two branches of General and Applied Chemistry.

There is a laboratory for Qualitative Analysis, with desks for forty-seven students, and another for Quantitative Analysis, with desks for forty students. Attached to the laboratories are the Assistants' rooms, acid room, weighing room and store room, and the laboratories are provided with all of the appliances for a full course in chemical analysis. There is also an Assay Laboratory, with crucible and muffle furnaces. These laboratories are all in the School of Science building, and each student has a desk for his own use, with cupboards and drawers in which he can lock up such apparatus as is supplied to him individually.

Mineralogical Laboratory and Collections of the School of Science.

The laboratory contains desks for seventy-six students, with room for fourteen more desks. Each desk is fitted with gas connections for blowpipe work in Determinative Mineralogy, and contains a locked drawer for the student's apparatus.

There are three cabinets of minerals. The principal one contains over five thousand specimens, embracing nearly every mineral species. Two smaller cabinets, one with labeled and the other with unlabeled minerals, are provided for practice with the classes, and to these two cabinets the students have free access.

There is also a collection of 240 specimens of typical rocks; together with a large number of Fuess's rock sections; as well as sections from other sources, for the study of Lithology.

The laboratory is provided also with section cutters, grinding lathes, and other appliances for the special study of minerals and rocks: including a complete Groth's polarizing apparatus, with goniometer; a large Babinet goniometer; Norremberg's polarizing apparatus; Rosenbusch's microscope, and minor apparatus.

An interesting collection of coals from Colorado was presented to the mineralogical cabinet by Mr. W. H. Underwood last year.

Histological Laboratory.

This laboratory is in the building adjoining the School of Science. It is fitted to accommodate ten students at a time, each of whom is provided with the requisite instruments, reagents and staining fluids for the study of the various tissues. The microscopes have been selected with a view to convenience in practical work. A private collection of upwards of 600 slides, illustrating the general subject of Histology, is also placed at the disposal of the student, as well as books of reference and American and foreign publications. A fee of $10 is charged to cover material used and general expenses. The laboratory is open at all hours to its regular students.

Morphological Laboratory.

This laboratory adjoins the School of Science building. It is designed for the practical study of Vertebrate Anatomy, with abundant facilities for dissection and experimental work. Besides the ordinary apparatus, there is a chick incubator for Embryological study, and an aquarium containing live Amphibia belonging to the different groups. For comparative study there belongs to the laboratory a collection of disarticulated skeletons of the typical vertebrates, and a number of alcoholic specimens. The laboratory library contains the principal works of reference. There is a fee of $3 for ordinary courses in dissection. The laboratory is open during the day and evening.

ASTRONOMICAL OBSERVATORIES.

The Halsted Observatory.

This is appropriated to scientific work, chiefly in the department of Astronomical Physics. The building is of stone, with an iron dome, 39 feet in diameter. The power for moving the dome and its sliding shutter is furnished by a gas engine. The principal instrument is the great equatorial of 23 inches aperture and 30 feet focal length, made by the Clarks of Cambridge. It is provided with all the usual micrometers, spectroscopes and other accessories on a scale proportional to the instrument. The building contains also two clocks and a chronograph. An Edison dynamo-electric machine supplies the electric currents required in spectroscopic investigations.

The Observatory of Instruction.

This establishment is devoted entirely to the use of students, and is fully equipped for its purpose. It possesses an equatorial (by Clark) of 9½ inches aperture, with an unusual complement of spectroscopic and other accessories. It has also a 9-inch reflector; a meridian circle with telescope 4 inches in diameter; two transit instruments with 3-inch telescopes, both of them arranged for use as zenith-telescopes; a 3-inch prime-vertical instrument; a chronograph; two standard clocks, and two chronometers. There are also a number of sextants, and all the other subsidiary apparatus required for carrying out the work detailed on page 63.

GYMNASIUM.

The Gymnasium was built in 1869 by Mr. Robert Bonner and Mr. Henry G. Marquand. It is thoroughly equipped with all the apparatus necessary for a complete physical training. It has hot and cold shower and plunge baths, dressing rooms, bowling alleys, and, besides the main hall, a room for base ball practice. There is also a gallery for visitors. The Gymnasium is open from 7 to 8 A. M., 12 M. to 1.30 P. M., 5 to 6.30 P. M., on every day except Saturday, when it is open from 12 M. to 6.30

P. M. During the second term exercise in the gymnasium is required of all members of the Sophomore and Freshman classes, three times a week; the remainder of the year attendance is optional. Classes in the use of Indian Clubs and Calisthenics are held every day during the noon and afternoon hours. These exercises are adapted to all grades of strength, and are such as to maintain and improve in health all who take part in them, health being the primary and strength the secondary object of exercise. Special exercise on the various apparatus is under the personal supervision of the Superintendent, who is also at the command of any student for advice in regard to physical development and the laws of health. During the winter term there is an outdoor athletic meeting for prizes; in the spring term a gymnastic contest also for prizes, and at Commencement a gymnastic exhibition.

GENERAL COLLEGE ORDERS.

TERMS AND VACATIONS.

The year is divided into three terms or sessions.

The *first* term of the *present* College year (1884–85) began on Wednesday, the 10th of September, 1884, and ends on Wednesday, the 17th day of December. The *second* term begins on Monday, the 5th of January, 1885, and ends on Wednesday, the 8th of April. The *third* term begins on Wednesday, the 15th of April, and ends on Wednesday, the 17th of June, 1885,—the day of the Annual Commencement.

Students are required to return to College on the first day of each term, and absences from any College exercise at the beginning of a term count double.

Students are not allowed to leave College during term-time without express permission obtained from the Faculty or officer of the class to which they belong.

COMMENCEMENT ANNIVERSARIES.

THE ANNUAL COMMENCEMENT takes place on the Wednesday preceding the last Wednesday in June.

THE BACCALAUREATE SERMON of the President to the graduating Class is delivered before the College on the Sunday preceding Commencement.

On the subsequent days preceding Commencement will be held the Class Day Exercises of the graduating Class, the Lynde Prize Debate, the Junior Oratorical Contest, the Reading of Theses by the graduating Class of the School of Science, the Annual Meetings of the Literary Societies, and the Annual Meeting of the Alumni Association of Nassau Hall.

PUBLIC WORSHIP.

Prayers are offered in the Marquand Chapel every week-day morning. In these services, members of the Faculty officiate in turn.

Divine service, under the superintendence of the President, is held in the Marquand Chapel, on Sunday, at 11 o'clock A. M. The pulpit is filled alternately by Professor Murray and the clerical members of the Faculty.

Religious services are held in the chapel every Sabbath afternoon at 5 o'clock.

Permission to attend divine service elsewhere than in the College, on special occasions, is granted on application to the President. For permission to attend regularly one of the Churches of the town on Sabbath morning, a written request from the parent or guardian of the applicant must be presented to the President.

RELIGIOUS INSTRUCTION.

Biblical Instruction is given during the week, as follows:

To the Senior Class by Dr. Murray: The Development of Doctrine in the New Testament.

To the Junior Class by Professors Johnston and Ormond: The Book of Acts.

To the Sophomore Academic Class by Professor Orris: John's Gospel in the Greek. Professor Winans: Luke's Gospel.

To the Freshman Academic Class by Professors Hunt and West: General Introduction to the study of the Scriptures. The Poetical Books of the Old Testament and Parables of our Lord.

To the Freshman and Sophomore Classes in the School of Science by Professor Macloskie: Typology of the Old Testament, and the Life of Christ.

ATTENDANCE UPON COLLEGE EXERCISES.

The several Classes ordinarily attend three Recitations or Lectures every day, except Saturday, when there are but two College exercises.

Every undergraduate student is required to attend all College exercises in the Chapel, to be present during the lectures

and recitations of his Class, and is to avail himself of the privileges of the Library and Gymnasium upon the conditions and at the hours appointed.

Each student is allowed a certain limited number of absences from chapel and recitations during the term. When a student's absences exceed this gratuity they are charged against his gratuity for the next term, or otherwise dealt with by such discipline as the Faculty may direct.

PECUNIARY AID.

A limited number of students of good moral character, intellectual ability and promise, needing assistance, are aided in their efforts to obtain a liberal education, by means of endowed scholarships, which discharge the amount of their tuition fees.

Application for admission to these Scholarships, as they become vacant, should be made to Professor Duffield.

The College also possesses a fund given for the purpose of aiding candidates for the ministry of the Presbyterian Church, from which they can receive at least thirty dollars a year each.

Endowed Scholarships.

Friends of the College and some Churches have endowed a number of Scholarships, which are designed to extend the privileges of the Institution to deserving young men needing assistance. Hitherto the sum of $1,000 has been sufficient to found such a Scholarship, but owing to the diminution of the rate of interest, a principal sum of $2,000, or the annual payment of $100 as interest until the principal is paid, is now requisite for an endowment,

Those who are placed upon these Scholarships must be fully prepared for admission to College, and when admitted must conform to its laws and regulations.

The applications for the benefit of these Scholarships, by young men of promise, far exceed the number endowed, and the friends of the College and of education may aid deserving young men, and at the same time increase the current income of the College by adding to this foundation.

LIST OF ENDOWED SCHOLARSHIPS.

1. Matthew Newkirk	$1,000	34. Skidmore	$1,000
2. William Rankin	1,000	35. L. S. Spencer	1,000
3. A. Cresswell	1,000	36. J. D. Lalor	1,000
4. Isaac R. Rankin	1,000	37. Frederick Marquand	1,000
5–7. Roswell Colt	3,000	38. 1st Pres. Ch., Trenton	1,000
8. Musgrave	1,000	39. S. and D. Cameron	1,000
9. J. Cogswell	1,000	40. 2d Pres. Ch., Elizabeth	1,000
10. Henry W. Green	1,000	41. Chas. S. Bayliss	1,000
11–15. James Lenox	5,000	42. Eliza Musgrave Giger	1,000
16. Hugh L. Hodge	1,000	43. James Blair	1,000
17. A. B. Bayliss	1,000	44. Samuel H. Pennington	1,000
18. Henry J. Van Dyke	1,000	45. Aaron Fenton	1,000
19. Dudley S. Gregory	1,000	46. Alanson Trask	1,000
20. Pres. Ch., Peekskill, N. Y.	1,000	47. Withington	1,000
21. John Van Vorst	1,000	48. Newark	1,000
22. Jacob J. Janeway	1,000	49. Aaron Carter	1,000
23. Ladies of Huntington, L. I.	1,000	50–54. Silas Holmes	5,000
24. E. F. Backus	1,000	55. Stephen Colwell	1,000
25. Van Sinderen	1,000	56. John Aitken	1,000
26. N. Norris Halstead	1,000	57. Mrs. P. Bullard	1,000
27. Maclean	1,000	58. Nehemiah Perry	1,000
28. Richard F. Haines	1,000	59. Samuel Hamill	1,000
29. John P. Jackson	1,000	60. Beers	1,000
30. Joseph N. Tuttle	1,000	61. Peter Jacobus	1,000
31. Gertrude N. Woodhull	1,000	62. John Maclean	1,000
32. Nathaniel W. Townsend	1,000	63. William White	1,000
33. 1st Pres. Ch. of Bridgeton	1,000		

EXPENSES.

The following is the Schedule of the College expenses for 1884–5 :

Board, 37 weeks	$ 2.75 to $7 per week.
Washing, 37 weeks	50 cents per week.
Tuition, Academic	100.00 per annum.
Tuition, School of Science	120.00 per annum.
*Tuition, Special Course in Analytical Chemistry	120.00 per annum.
Tuition, extra for Laboratory Chemistry, Senior Elective	18.00 per annum.
Room Rent (according to location of rooms)	18.00 to $200 per annum.
Fuel Deposit (according to location of rooms)	17.00 to $26 per annum.
Gas Deposit (according to location of rooms)	24.00 to $42 per annum.
Public Rooms (Library, Gymnasium, &c.)	25.00 per annum.
Matriculation Fee, payable on entrance	5.00
Graduation Fee, payable third term, Senior year	12.00

The charges for fuel and gas are approximations based upon the greatest amount used. An account of the actual consumption is kept with each room, and the exact charge is adjusted at the end of the year. The charge for fuel includes the cost of kindling, and the labor of carrying coal, making fires, &c.

*For other Special Courses arrangement will be made upon consultation with the Professor in charge.

Apparatus Deposits.—Students pursuing certain courses in the School of Science are required to make deposits to pay for apparatus injured or destroyed. At the end of the term any excess in favor of the student is placed to his credit on the bill for next session. The deposits in the courses for B. S. are:—Sophomores, first term, $12; second term, $10; third term, $5. Juniors taking any work in Chemical Analysis, second term, $12; third term, $8. Seniors electing the course in Chemistry and Mineralogy, first term, $20; second term, $15; other Seniors taking any work in Chemical Analysis, first term, $15. The deposits in the course for C. E., all payable in the first term, are:—Freshmen, $3; Juniors, $6; Seniors, $4; all of the foregoing being for apparatus in the Engineering Department; also, Sophomores, $5 for the Engineering Department, and $12 for Blowpipe apparatus. Academic Seniors, electing Laboratory Chemistry, will deposit $7, payable in the first term.

ESTIMATES OF ANNUAL EXPENSES.

Attention is specially called to the following approximate estimate of the necessary annual expenses for a student occupying a room in College, without including clothes, traveling or vacation expenses:

	Min.	*Medium.*	*Max.*
Board, 38 weeks at $2.75 to $7.00	$104	$152	$266
Washing, 38 weeks at 50c. per week	19	19	19
Tuition and Fees	125	125	125
Room Rent	25	60	200
Fuel and Light (Kerosene or Gas)	15	25	50
Books	15	20	25
Hall Dues and College Subscriptions	7	25	50
	$310	$426	$735
Deduct for Students on Scholarship	100		
	$210		
Deduct for Candidates for Ministry	30		
	$180		

See page 146.

College Bills.

All College expenses, including board and washing, must be paid in advance to the Treasurer of the College.

Students are required to call at the Treasurer's office in the course of the first ten days of each session, and to give information as to their place of boarding, etc., so that their bills can be

made out. All bills must be paid within the first four weeks of the session. Failure to comply with this rule shall deprive the student of the privileges of the College until payment is made, unless excused by special vote of the Faculty.

When a student enters college before the middle of a session, he shall pay in full the usual college charges for that session, with the exception of the charges for board and washing; if he enter after the middle of the session, he shall pay one-half. For board and washing he shall pay in proportion to the time.

When a student leaves the college, whether voluntarily or by dismission, before the middle of any session, one-half of the charges for tuition and public rooms for that session shall be refunded. But in the case of temporary absence and subsequent return, although the absence be for more than half a session, no such rebate shall be granted.

When a student is dismissed from college for any cause, the advance deposit for board, washing, fuel, and gas, beyond the time of his dismission shall be refunded to his parent or guardian.

When at the end of the first or second sessions the amount of the advance deposit proves to be in excess of the sum required to defray the board, washing, or room bills of any student, the excess shall be credited on his bill for the next session. At the end of the college year the amounts overpaid for board, washing, room-rent, fuel, or gas shall be refunded by the treasurer to the student's parent or guardian.

RULES RESPECTING THE RENTAL AND ALLOTMENT OF ROOMS IN THE COLLEGE BUILDINGS.

1. Whenever a student desires to occupy a room in one of the College buildings, he and his parent or guardian shall be required to sign a room agreement, engaging to pay the rent and charges of said room for the ensuing Academic year, or for the remainder of the current year, as the case may be.

2. The tenure of all rooms so engaged shall be subject to the following conditions as regards damages and repairs, viz.: (1.) All damage done to a room beyond the ordinary wear and tear, shall be made good as soon as possible at the expense of the occupant. This provision includes the breakage of glass

whether by accident or design. The occupant shall employ the proper college workmen and pay the cost of the repairs at once to the Treasurer. (2.) The occupants of a room shall deposit with the Curator the sum of twenty-five cents for every key furnished, which amount shall be refunded on return of the keys.

3. Students now occupying rooms, or to whom rooms shall hereafter be allotted, may have the option of retaining such rooms until the end of their College course, on condition of annually notifying the Treasurer of their intention of retaining their room for the following year, and signing a new room-agreement before May 20th; otherwise their rooms will be considered as vacated, and will be included in the annual allotment.

4. Rooms becoming vacant at or near the close of the College year shall be assigned to new occupants, by lot. The members of the Junior and Sophomore Classes who desire a choice shall draw lots first; then the Freshmen. As soon as the drawing is completed the rooms must at once be selected in order of priority of choice.

5. No student will be entitled to the room allotted him unless the room agreements shall have been signed and returned to the Treasurer before June 10th.

6. New students shall have the choice of any remaining rooms in the order of their application, after admission into College, on condition of immediately signing the room agreement, and depositing with the Treasurer the rent for the next ensuing term.

7. Every student who draws or retains a room is expected to occupy the same, and pay the rent and charges, or his share thereof, until the end of the College year, unless sooner released by the proper authority.

8. A student who expects to be absent on leave for a term may be released from the above obligation, by notifying the Treasurer before the beginning of the term, and by giving up the room; but no abatement or drawback for room rent will be made to any student vacating his room during a term, unless by express direction of the Faculty.

9. Whenever, by any contingency, one of two room-mates is permitted or obliged to cancel his room agreement, the re-

maining occupant must vacate the room at the end of the current term, unless he agrees to pay the whole rent, or provides a room-mate who shall join him in signing a new agreement for the remainder of the College year. When one of two occupants of a room is a member of the Senior Class, the room shall become vacant when the Senior graduates, and be subject to the provisions of Rule 4; except in cases where the joint occupancy has continued for at least one year.

10. When rooms are vacated during the first or second term the rent shall be paid to the end of the term (see Rule 8), at which time the students who may have registered their names as applicants for vacancies, shall draw for them by lot.

11. Exchange of rooms, or substitution of one occupant for another, must be by authority of the Treasurer, and any student moving into a room, without authority *previously obtained*, will be liable to a fine of $10, and be required to vacate the room. Such exchanges can only be made at the end of a term, or in the course of the first three days of the following term.

12. No tenant of a College room who is permitted or compelled to vacate such room will be allowed to transfer directly or indirectly any interest in or title to the room.

13. When a student vacates a room he shall immediately remove the furniture therefrom; unless the student to whom the room is assigned elects to purchase the same. In case a sale is agreed upon between the parties, the price to be paid by the purchaser shall be ascertained by deducting from the cost price of the furniture a discount of twenty per cent. per annum for the time the same has been in use by the vendor; provided that the price to be paid for the furniture in a room shall in no case exceed $200. All sales shall be approved by the Treasurer before the same are finally consummated.

14. Students leaving College, or otherwise vacating their rooms, shall be allowed to store their furniture in a room assigned by the College authorities, under the charge of a salesman appointed by the College, where it may be offered for sale. Furniture remaining unsold at the end of three months, if not removed by the owner, will be disposed of at public auction to the highest bidder.